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# Job descriptions and job analyses in practice: How research and application differ

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# JOB DESCRIPTIONS AND JOB ANALYSES IN PRACTICE:

# HOW RESEARCH AND APPLICATION DIFFER

A Dissertation

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

BY

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MARCH 2009

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## ACKNOWLEDGEMENT

I would like to thank my chairperson, Dr. Jane Halpert for insight and expertise. I would also like to express my thanks to my committee members for their valuable feedback.

I am grateful to my friends, family, and co-workers for their support throughout this process. I especially want to thank Bryan Royer, Kelly Cichy, and Melissa Morrissett. Without their coding, proofreading, statistical insight, and overall support I would not have been able to get through this.

# VITA

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# CHAPTER I. INTRODUCTION

Human resource professionals and consultants use job descriptions and job analyses as basic building blocks for many human resource (HR) functions, including recruitment and hiring, performance evaluations, and salary ranges (Levine, Sistrunk, McNutt, & Gael, 1988). Job descriptions and job analyses are essential to businesses. They help to ensure that the correct people are hired for the job (Brannick, Levine, & Morgeson, 2007), they protect businesses against lawsuits (Veres, Lahey, & Buckly,1987), and they assist companies in properly compensating their employees (Smith, Benson, & Hornsby, 1990). Therefore, it is important to see to it that job descriptions and job analyses are done properly and are thorough because the accuracy of these tools will in turn affect the quality of many HR functions (Fleishman & Mumford, 1991).

Because job descriptions and job analyses are so important to HR functions, evaluating the quality of these two tools and how well they fit together is important. Job descriptions are meant to be developed from job analysis data (Brannick et al., 2007). However, it is not clear that this is always the case. It is possible that research and practice may differ.

The primary purpose of this study was to examine how closely the job descriptions for a variety of positions matched the job analyses for these positions. As part of this examination, this study looked at whether the person who filled out the job analysis questionnaire (i.e., a human resource professional or supervisor) affected how closely the job description and the job analysis matched.

The secondary purpose of this study was to examine the structure of the job description. It examined what specific job description information constituted job descriptions in municipal governments. This included looking at whether there was a list of tasks, necessary knowledge, skills and abilities, position alignment (i.e., where the position fits into the organizational chart), and environmental factors. By looking at the differences between job descriptions and job analyses, we determined where job descriptions need improvement.

This study illustrates the importance of looking at the accuracy of the job analyses and job descriptions because of how these tools are used to design selection exams in the work place.

## Job Analysis

### Overview of Job Analysis

A job analysis is defined as the collection of data on job-oriented behaviors, worker-oriented behaviors, behaviors involved in interactions with machines, materials, and tools, methods of evaluating performance, job context and personnel requirements (Harvey, 1991; McCormick, Jeanneret, & Mecham, 1972). Job analysis is “one of the most widely used organizational data collection techniques” (Morgeson & Campion, 1997, p. 627), but the true purpose of the job analysis is to assist in other areas of HR (Ash & Levine, 1980). According to Fleishman and Mumford (1991), job analyses are designed to obtain a description of job behaviors and provide a foundation for HR functions. Brannick et al. (2007) state that job analyses are used for everything from creating job

descriptions and developing training to determining efficiency and conducting workforce planning.

Uses for Job Analysis

Job analyses are essential to HR because they are the means for the development of all HR functions (Bowen, 2003; Brannick et al., 2007). The present study examined how the person completing the job analysis can influence the outcome of the job analysis. This individual can then indirectly influence other HR functions by affecting the quality of the job analysis, which in turn influences the quality of other HR functions (Fleishman & Mumford, 1991).

As stated earlier, a job analysis can serve as the basis for many HR functions. These HR functions include job descriptions, job classifications, job evaluation, performance appraisal and training, and job specifications (Ash, 1988; Ash & Levine, 1980; Brannick et al., 2007; Levine et al., 1988). Benge (1940) states that as long as there is enough detail in the job analysis, it can be used for a wide variety of HR functions including merit ratings, selection, training, incentive pay, improving work conditions, improving work methods, charting lines of responsibility, functions of jobs, and lines of promotion.

In order to understand the impact that job analyses have on the workplace, a brief review of what job analyses are used for follows.

Job descriptions.

The creation of job descriptions is the most common use for job analyses (Brannick et al., 2007). Usually, job descriptions are created by compiling the most salient information gathered in the job analysis. Job descriptions essentially

summarize the findings of the job analysis and highlight the most important elements of the job. Job descriptions will be discussed in greater detail later.

Employment specifications.

When recruiting and screening applicants, employers utilize job analyses to determine what knowledge, skills and abilities an applicant needs to perform the job (Brannick et al., 2007). These needs are referred to as job specifications, or "a written description of job requirements" (Brannick et al., 2007, p. 220). Job specifications can include job requirements such as written communication skills or prior experience in a certain field. Job specifications allow companies to determine the educational, professional, and certification requirements for a person performing a job. Prien and Hughes (2004) demonstrated that minimum qualifications, such as education requirements, can be established by utilizing a quantitative job analysis designed to measure the educational achievement needed to perform a task. In Prien and Hughes' study, knowledge required was linked with levels of education.

Job analyses also make it possible for employers to determine what tests can be used to select or promote. Jones et al. (2001) state that when looking at knowledge, skills, abilities, and other characteristics (e.g. traits), those that are relatively stable individual characteristics should be what employers screen applicants for using selection exams. These can be such things as mechanical ability and selective attention. A job analysis is used to determine what knowledge, skills, and abilities (KSAs) are required, then, those KSA's that are relatively stable and cannot easily be trained are selected as the criteria that a

selection tool will screen for. HR professionals may then design a selection exam, or purchase a selection exam, that measures these stable KSA's.

Job analyses have been used as a legal defense and source of validation for examinations and minimum qualifications required for obtaining a position (Harvey, 1991; Veres et al., 1987). Levine et al. (1988) found that in corporations that are leaders in job analyses, legal pressures were addressed with the aid of the job analyses that the corporations performed. These job analyses provided the legal foundation for making management decisions, such as educational requirements and performance evaluations. Companies that used job analyses to make these decisions did not have to go back and do the research to justify the decision when a decision was challenged in court, while companies that did not utilize job analyses had to spend a great deal of time and money after the fact conducting the research justifying decisions. Veres et al. (1987) state that the "courts have determined that validation studies . . . must demonstrate the ties between identified work behaviors (or tasks) and the companion KSA's" (p.153). Furthermore, these ties are accomplished by conducting a job analysis.

Merritt-Haston and Wexley (1983) conducted an analysis of court cases involving minimum educational requirements. They found that employers who set minimum educational requirements were likely to win a court case when the jobs were highly technical, the jobs involved risk to the safety of the public, or jobs required advanced knowledge. Employers were also successful if they could demonstrate evidence of criterion-related and content-related validity for these requirements. All of this is achieved through conducting job analyses that

demonstrate that the job is highly technical, involves the safety of the public, requires advanced knowledge, or entails performance that is linked to the education requirements (criterion-related validity).

Merrit-Haston and Wexley (1983) and Veres et al. (1987) both show that a sound job analysis can protect employers when management decisions such as performance appraisals, selection tools, and educational requirements are challenged in court. If a job analysis does not support these same management decisions, then the employer is likely to lose in court. The legal consequences of a job analysis demonstrate the importance of research into the accuracy and content of the job analysis.

Job evaluations.

Job evaluations are studies conducted in order to determine the worth of a job, and they are used to set the base pay to ensure equity in compensation (Brannick et al., 2007; Hahn & Dipboye, 1988; Schwab & Heneman, 1986). Levine et al. (1988) reviewed nine corporations that were exemplary in their use of job analysis. Of the nine corporations, eight conducted job analyses with the intent of using the analyses for job evaluation or to determine compensation. Job evaluations can also be conducted from information provided in a job description (Brannick et al. 2007; Hahn & Dipboye, 1988).

Job evaluations are conducted by having analysts rate information found in the job description, the job analysis, or the assessment of work components (Brannick et al., 2007). The ratings can be done in by examining compensable factors (i.e., attributes of the job), by examining the job as a whole, or by

examining a job in relation to other comparable jobs (Brannick et al., 2007). Job evaluations examine what types of tasks are completed as part of the job and what knowledge, skills, and abilities are required to perform the job. The job analysts then determine how complex the job is, the extent to which the work is complex, and the relative worth of the work that is being performed. By utilizing a job analysis for many functions, including job evaluations, organizations are able to be more efficient in their HR functions.

Training.

Job analyses can be used to determine the objectives of training for a job (Brannick., 2007). The job analysis in regards to training primarily relates to curriculum development and needs assessment (Levine et al., 1988). A job analysis tells the HR professional or trainer what the incumbent employee will need in order to be able to perform after going through training (Brannick et al., 2007; Goldstein & Ford, 2002). By showing what the employee needs to know in order to perform the job, the HR professional can make a determination of what knowledge or skills need to be taught in training. By using a job analysis in developing a training program, organizations have found that "needs are better assessed, courses are more job-related, and more of the appropriate population is reached" (Levine et al., 1988, p. 17).

Jones et al. (2001) suggest that a job analysis should tell you what KSA's are necessary for someone performing a job. As discussed earlier, those knowledge and skills that can be easily taught and that are very specific to the job are the knowledge and skills that should be included in training, while more stable

individual characteristics such as mechanical and cognitive abilities should be the basis for screening applicants.

Schippmann, Snalley, Vinchur, and Prien (1988) used a job analysis as the foundation for improving the training of clinical psychologists. In their research, they conducted a job analysis to determine the skills required of a clinical psychologist. The job analysis informed them of the most important skills for a person in that job. Through the job analysis, they also found which specific skills were the most difficult to learn. They then worked to develop a training program that focused on those skills that were most important and were able to dedicate more training time for the skills that were also most difficult to learn. Schippmann et al. (1988) utilized the findings of the job analysis to make improvements to the training program. Their study demonstrates the training purpose of a job analysis.

Performance appraisal.

Performance appraisal is another use for job analyses (Brannick et al., 2007; Levine et al., 1988). According to Levine et al. (1988), using job analyses for development of performance appraisal systems leads to the systems being more effective and more legally defensible.

Schippmann et al. (1988) did not just look at job analysis as the basis for training; they also utilized a job analysis to design a performance appraisal system for clinical psychologists. In their study, Schippmann et al. (1988) conducted a job analysis that examined the tasks performed by a person in that job. They took the most important tasks and used them as the basis for the performance appraisal

tool. The clinical psychologists who received a performance appraisal were evaluated based on how well they performed the tasks that were shown to be most important on the job analysis. Schippmann et al. then used the job analysis to make a well-designed and legally defensible performance appraisal tool.

It is clear that job analyses have extensive uses in HR. Because job analyses are so widely used, it is important to also examine who is completing these job analyses and what factors can influence the job analysis results.

Types of Job Analysis

Now that the various uses of job analyses has been discussed, it is important to address the different types, or methods, of job analysis. There are three general methods of job analysis, specifically work-oriented, worker-oriented, and hybrid (Brannick et al., 2007). The method used for the job analysis should be determined by the purpose of the job analysis (Brannick et al., 2007). Choosing the correct method, given the purpose of the job analysis, is important because the method used makes a significant difference in the outcome of the job analysis (Cornelius, Carron, & Collins, 1979). Cornelius et al. (1979) determined that the type of job analysis used strongly influenced the resulting job classification decision. Job classification involves the category of work that a job fits in; for example water line repairman and park maintenance worker would both fall into a general classification of laborer, whereas a secretary and a data entry clerk would be classified as clerical. This suggests that not only the number of job categories but also the type of job categories differed depending on what type of job analysis was used.

Work-oriented methods.

Work-oriented methods of job analysis focus on what the worker does as part of his or her job (Brannick et al., 2007). In some research these methods are referred to as task-oriented methods (Cornelius et al., 1979; Lopez, Kesselman, & Lopez, 1981; Prien & Ronan, 1971) because they refer to any method that analyzes the types of tasks completed by someone in the job as well as the tools and equipment used to do it (Brannick et al., 2007). A task analysis is conducted by having raters review a list of activities that are performed as part of a job (Brannick et al., 2007). These raters then indicate their observations of the position, such as how often the activity is performed, how difficult the task is to perform, or how important the task is to the overall job. These tell the HR professionals conducting a job analysis how critical each activity (or task) is to a job. Examples of these methods include time-and-motion studies, functional job analyses (FJA's), task inventories, and critical incident techniques.

The FJA was developed by Fine (1955) in order to look at what the worker does instead of just the output that the worker produces (Lopez et al., 1981). FJA attempts to classify jobs based on what workers do in relation to data, people, and things (Brannick et al., 2007). One of the best examples of an FJA is the *Dictionary of Occupational Titles* (DOT), developed by the Department of Labor (United States Employment Service, 1991). The DOT was developed in the 1930s in an attempt to help improve the public employment system created during the Great Depression by linking "skill supply with skill demand" (Peterson et al., 2001, p. 453). It went through many revisions and was a standard for HR

professional for many years. In later years, the DOT more closely resembled Fine's FJA. The importance of the DOT demonstrates how critical the development of the FJA was, and what it has meant to HR functions in the United States of America. The DOT has now been replaced with the Occupational Information Network (O*NET), an online job analysis tool (Peterson et al., 2001). O*NET will be discussed in greater detail later.

A more recent article by Dierdorff and Morgeson (2007) describes that work center analyses look at descriptions of the tasks and responsibilities that are required by the job. Dierdorff and Morgeson state that while these may have behavioral implications for the worker, they are centered and what needs to be done, not on what the worker needs to complete the job.

Worker-oriented methods.

Worker-oriented methods of job analysis involve examining the attributes required by workers to perform the job (Brannick et al., 2007; Harvey, Friedman, Hakel, & Cornelius, 1988). The focus of worker-oriented methods is on the knowledge, skills, abilities and other characteristics that a worker must have in order to perform his or her job. According to Harvey et al. (1988), "the worker-oriented approach to job analysis is one of the most useful methods of work descriptions yet developed" (1988, p. 636). McCormick et al. (1967) describe this technique as more inclusive of occupational areas than work-oriented approaches. The worker-oriented method is often used for selection purposes, in that they look for what specific KSA's that a job requires (Brannick et al., 2007). Dierdorff and Wilson (2007) explain that worker-oriented analyses

describe the requirements of the person to complete the tasks and responsibilities of the job.

The Position Analysis Questionnaire (PAQ) is one of the most widely recognized worker-oriented job analyses. The PAQ was one of the first job analysis methods to quantify the job analysis data, and was designed to be applicable across jobs and organizations (McCormick et al., 1972). It is composed of descriptors that were derived through a factor analysis of job ratings on worker-oriented statements. For example, these statements might include “able to communicate in writing” or “able to solve mathematical equations.” The result of the PAQ is a score on activity factors and the degree to which specific general abilities (e.g., mathematical computation and reading comprehension) are linked to these behaviors (e.g., computing square footage of a room and reading written instruction manuals (Cunningham, Bese, Neeb, & Pass, 1983; McCormick et al., 1972).

However, Ash and Edgell (1975) found that the PAQ requires those completing it to have a reading level of a post-college-graduate. It should be noted that while the PAQ is often used as a survey, the original intent was for it to be an interview, making reading level irrelevant (McCormick et al., 1972). In order to help lower the reading level required by the PAQ used as a survey, Cornelius and Hackel (1978) developed the Job Element Inventory. The Job Element Inventory has a lower reading level than the PAQ, but still measures the same factors as the PAQ (Harvey et al., 1988). The Job Element Survey is

therefore more effective to use when incumbents in the position do not have, or need to have, the necessary reading level to correctly fill out the PAQ.

The present study used a worker-oriented job analysis because the primary purpose of the job analysis in this study was to design a selection tool that ensured applicants have the required knowledge, skills, and abilities to perform a job. According to Brannick et al. (2007), worker-oriented methods are the most appropriate when trying to design a selection tool.

Hybrid methods.

Hybrid methods of job analysis use elements of both work-oriented and worker-oriented methods. O*NET is a prime example of a hybrid method of job analysis (Brannick et al., 2007). O*NET was established in order to replace the DOT (Peterson et al., 2001). O*NET is a website created by the Department of Labor and offers information regarding most categories of jobs in the United States. The Department of Labor recognized the limitations of the DOT in that it was easily outdated by the time it was published, and it had a task-oriented focus, while more and more users needed something that was more worker-oriented. The DOT did not state what characteristics of workers were needed. Therefore, when O*NET was developed, the DOL tried to combine the functional job analysis method that defined the DOT with work-oriented models allowing O*NET to provide several different ways of looking jobs in the United States (Peterson et al., 2001). The information on O*NET includes requirements of the workers filling a job, such as education, experience, and KSA's, but also

information about the work that is performed and the context in which it is performed.

## Job Descriptions

Now that the various uses and types of job analyses have been discussed, the most common use of job analyses, job descriptions, should also be explored in greater detail (Brannick et al., 2007).

### Overview of Job Descriptions

Brannick et al. (2007) define a job description as a "brief written description of work" (p. 4). According to Brannick et al. (2007), job descriptions are used to provide information regarding what precisely the job entails to people that do not perform the job. The intent is to provide an overview of the job to those who are not familiar with it. Grant (1988) refers to a job description as the "blueprint" of a job (p. 53). This means what tasks and responsibilities must be performed as part of the job.

### Content of Job Descriptions

Researchers and professionals are generally in agreement over what a job description consists of: identifiers, summary, duties and tasks, and often other information (Brannick, et al. 2007). Identifiers include such things as the job title as well as both the physical and functional locations of the job. The functional location includes information about who supervises the incumbent and who the incumbent supervises. Physical location refers to where in the company the job can be found, such as what department and where on the grounds. A job summary contains a description of the essence of the job. This is not a detailed

list of duties, but instead includes the primary functions of the position. The duties and tasks section of the job description provides the details not found in the job summary. This section generally answers the questions: what, how, and why. For example, one duty or task of a receptionist might be, “to answer phones using the switchboard in a timely fashion to ensure customers receive a prompt and courteous greeting.” The what, in this example is “to answer phones . . . in a timely fashion.” The how refers to the equipment, in this case, the switchboard. The why refers to the goal of the task, in this case, the goal is for customers to “receive a prompt and courteous greeting.” The final section of the job description is miscellaneous information. The information in this section is not always present but when it is present it includes such things as working conditions, required knowledge, skills, and abilities, or job evaluation information.

Cascio (1998) breaks down the content of the job description using different terms than Brannick et al. (2007); however, they convey the same information. He states that there are five elements of a job description, including the job title, job activities and procedures, working conditions and physical environment, the social environment, and conditions of employment. The job title, the working conditions and physical environment, and the conditions of employment are what Brannick et al. (2007) refer to as identifiers. The information in the job activities and procedures section in Cascio (1998) is contained in Brannick et al.’s (2007) summary section and duties and task section.

The social environment section falls under the miscellaneous section described by Brannick et al.

Because researchers are generally in agreement as to what should be included in a job description, there is not a large body of research examining job descriptions. The general consensus is that job descriptions should be relatively short in length (Brannick et al., 2007). In a study by Jones, Main, Butler, and Johnson (1982), the 121 job descriptions they examined had an average length between two and three pages. Gael (1988) also recommends that job descriptions be between one and three pages in length. Job descriptions should contain the information that Brannick et al. (2007) list in their book which includes: identifiers, summary, duties and tasks, and other information (Gael, 1988; Ghorpade, 1988).

Grant (1988) addresses the shortcomings of job descriptions used in practice. He states that many job descriptions being used in HR do not provide enough detail to allow good HR management decisions to be made. Specifically, job descriptions are too simplistic, meaning that managers make decisions on a broad picture of the job rather than on the entire detailed picture of the job. And, while job analyses and job evaluations are what should be driving management decisions, job descriptions are too often used instead. Grant (1988) asserts that while all of the elements traditionally found in a job description are important, these elements often do not go far enough. He suggests that the job description should not only include a list of tasks that are performed, but the percentage of time spent on each task as well as how the frequency of these tasks may differ

between days of the week or seasons. Instead of merely providing information on who someone in the job reports to and who they supervise, Grant (1988) believes the job description should include information about how the job fits into the organization as a whole and what other links exist between the job and other jobs in the company. In Grant's argument, if more details were provided, HR professionals would be able to more easily perform tasks like performance appraisal and staffing decisions. A very important point that Grant makes is that job descriptions are often out of date. They tend to be written and left, instead of being updated as the job changes.

Although Grant (1988) advocates for an extensive amount of information, the general consensus is that job descriptions should be a brief overview of the job (Brannick et al., 2007; Gael, 1988) and when more detailed information about a job is needed, the results of a job analysis should be used (Brannick et al., 2007). In job analysis methods like the Position Analysis Questionnaire (PAQ) developed by McCormick et al. (1972), as well as in other modifications of the questionnaire, information such as the frequency of the performance of each task is collected (Brannick et al., 2007). If a job description is developed from a job analysis, as suggested by Brannick et al. (2007), then including all of the information that Grant (1988) suggests in a job description is redundant. Everything in the job description should be found in the job analysis because the job description is derived from the job analysis. However, including all of the information from the job analysis defeats the purpose of the job description. According to Brannick et al., the job description is meant to be a "snapshot of the

job" (p.177), not an entire narrative of the job analysis. Brannick et al. also state that a job analysis should be used for HR functions that require greater detail about the job, instead of using the job description. So, while some of the shortfalls of job description that Grant (1988) describes are legitimate, the amount of detail that Grant wants may be unnecessary.

In this study, the job analysis is worker-oriented, where the job description is more worker-oriented, where the job description is more work-oriented. Therefore, there may be differences in the KSAs found in the job description and job analysis for the same job.

Uses for Job Descriptions

Job descriptions have several different uses. As mentioned earlier, the overarching purpose of a job description is to describe to people who are unfamiliar with a job what it entails (Brannick et al., 2007). Therefore, many of the specific uses of job descriptions involve informing those who are unfamiliar with the job.

One such purpose is to assist in staffing (Cascio, 1998). Companies use job descriptions to inform potential applicants about what the job involves. This allows applicants to gain an understanding of the job and determine if they are qualified and want to apply for the job. Often job descriptions are included as part of the posting to recruit applicants for a position. According to Brannick et al. (2007), job descriptions are designed for the novice, not a job expert.

Job evaluation is another use for job descriptions. According to Brannick et al. (2007), job evaluation is the most common use for job descriptions. Job

evaluation is a process used to determine the worth of a given job and ensure that those who perform the job are appropriately compensated (Hahn & Dipboye, 1988). Job descriptions often serve as the basis of a job evaluation (Hahn & Dipboye, 1988). For example, one method of job evaluation has analysts rate the job by reviewing the job descriptions for several jobs and then ranking the order of the jobs in terms of their overall worth. This allows HR professionals to assign jobs to pay grades and to ensure that the job that has the most value is paid the most, while the job that has been determined to have the least worth gets paid the lowest amount.

According to Cascio (1998), job descriptions can also be a starting point for performance appraisals. They give the evaluator an outline of what an employee should be doing as part of the job, which helps the evaluator frame the ratings. Evaluators have a clear outline of what tasks a person in the job is required to perform and what skills and abilities the worker should have. The evaluator can then determine whether or not these tasks are being performed and whether the employee has the necessary skills and abilities.

## Development of Job Descriptions

### Development of a job description through a job analysis.

While Grant (1988) suggests that more information should be given in the job description, it seems to defeat the idea of the job description. Brannick et al. (2007) and Cascio (1998) state that job descriptions should be developed from job analyses, and that the job description should be a general overview of what the job analysis found. If Grant's (1988) suggestions were followed through on, the

job description would look more like a job analysis and take away from the purpose of the job description being an overview of what is most important in a job (Brannick et al., 2007).

According to Brannick et al. (2007), a functional job analysis can be used to generate the task and duties statements. Any work-oriented job analysis allows the analyst to discern the most important duties and tasks out of the job analysis to put into a job description. The job analysis allows raters to rank things like the goals of the job as well as the duties and tasks. When developing the job description, only the most important and most frequent of these duties, tasks, and goals are selected, allowing it to be an abbreviated version of what is found in the job analysis.

Development of a job description without a job analysis.

Brannick et al. (2007) believe that job descriptions should be developed from a job analysis; however, in practice, job descriptions are not always developed from a job analysis. When creating a new job, often managers and HR professionals create a job description in order to explain to the company and applicants what the job will involve. Since the job is new, there are no incumbents to collect information from, nor supervisors or analysts who have observed the job, making the use of a job analysis to create a job description impractical if not impossible.

Some research suggests that utilizing job descriptions to complete job analyses is not only easier but effective. In 1982, Jones et al. demonstrated that job descriptions can be used as a source of information for raters completing job

analysis questionnaires. Jones et al. (1982) had analysts use the PAQ to rate job descriptions and observations of the job. They found that the job dimension scores obtained when using job descriptions matched closely to the job dimension scores obtained when using job observation to complete the PAQ. This suggests that using job descriptions to quantify aspects of a job can be effective and can help save both time and money by not having to use the more traditional and time consuming methods of job analyses. However, the study does not go so far as to say that this can replace job analyses for all purposes and in all circumstances. This study was conducted in a lab, where the information provided to the raters could easily be manipulated.

Later research has found that those unfamiliar with a job do not give accurate job analysis ratings when utilizing reduced information job descriptions (Friedman & Harvey, 1986). Although this later research shows that inaccurate results are produced when people unfamiliar with the job complete a job analysis based on the reduced information found in the job description, it does actually occur in HR departments (Grant, 1988). Grant (1988) asserts that HR professionals and managers utilize job descriptions to make decisions about staffing, training, and performance controls. These are people that do not necessarily have observational experience of the job, and can result in less accurate job analysis results (Friedman & Harvey, 1986).

## Accuracy in Job Analysis and Job Evaluation

The results of a job analysis and a job evaluation are important to many HR functions. There has been a great deal of research regarding the accuracy of

the ratings for both job analyses and job evaluations. Because the ratings on both job analyses and job evaluations are subjective (Brannick et al., 2007; Smith, Benson, & Hornsby, 1990) and they are often conducted by the same people, it is important to look at studies that investigate the accuracy of job evaluations alongside the research that examines the accuracy of job analysis.

Morgeson and Campion (1997) called for researchers to start examining where and why inaccuracies occur in job analysis. They postulate that everything from loss of motivation to limited and biased information can create inaccuracies in job analysis. For the purpose of this paper, the research on accuracy will be divided into two main areas: (1) research that pertains to the influence that the information given to analysts has on the accuracy of ratings and (2) research that pertains to how the analysts themselves influence the accuracy of the ratings.

Information and Accuracy

One of the main areas that has been found to influence the accuracy of job analysis and job evaluation ratings is the amount and type of information given to those completing the ratings (Friedman & Harvey, 1986; Hahn & Dipboye, 1988; Smith et al., 1990). Researchers have found that the accuracy of a job evaluation is affected by the amount of information provided to the raters (Hahn & Dipboye, 1988). In Hahn and Dipboye's study, raters evaluated jobs using job descriptions. They found that raters are more accurate and reliable when they are given both a job title and a job description compared with when they are given a job title alone. Job evaluation ratings were also found to be more accurate when the raters were trained on how to properly complete the job evaluation tool and raters were less

likely to demonstrate a leniency effect. Hahn and Dipboye demonstrated that the differences in information given to raters produced a greater difference in results than did whether or not the raters were trained. This indicates that information provided in job descriptions is more important than training when it comes to the accuracy of job evaluations. Therefore, agencies may be able to save time and money on training raters and focus on giving them more information to ensure more accurate ratings.

Smith et al. (1990) also demonstrated that the content of the job description influences job evaluation judgments. Their study examined the primacy effect, which refers to a person's tendency to remember and refer to what comes first in a list. In Smith et al. (1990), the primacy effect was used to describe the rater's tendency to rely on the first things listed in the job description when evaluating the job instead of the entire job description. The results support the idea that a primacy effect does influence job evaluation ratings. The information placed at the beginning of the job description carried more weight in the job evaluation than did information found later in the job description. Smith et al. (1990) also found that raters integrate job description information so that it is averaged, not added. Evaluators average the difficulty and type of task to determine the value of the job rather than add all of the tasks performed on the job to determine its worth. For example, if the job required a person to perform several high cognitive ability tasks and several low cognitive ability tasks, evaluators would say that the job requires a moderate level of cognitive ability, not a high level of cognitive ability. This highlights the importance of carefully

constructing the format and content of the job description to ensure that the information leads to the most accurate job evaluation possible.

Morgeson and Campion (1997) suggest that the amount of information may also influence the accuracy of job analyses. In their discussion of possible causes of inaccuracies in job analysis, these authors theorize that less information about a job will lead to less accurate job analyses and more information about a job will lead to more accurate job analyses. The authors called for more research on the influence of amount of information on the accuracy of job analyses as well as other influences on job analysis accuracy.

Research by Friedman and Harvey (1986) has already shown that the amount of information provided to the raters did make a difference in the accuracy of the job analysis. When raters did not have familiarity with the job, and were provided a reduced information job description, they were unable to provide accurate job analysis ratings. These findings suggest that when raters are unfamiliar with a job, the information provided in the job description is critical to the raters' ability to provide an accurate job analysis. This demonstrates the cognitive component of completing a job analysis and that when not enough information is provided, there are cognitive reasons for inaccuracy. These cognitive reasons may include information overload or a rater's simplification of how to categorize items (Morgeson & Campion, 1997).

Schwab and Heneman (1986) found that allowing raters to gather more information leads to accurate results. In studies prior to Schwab and Hememan's 1986 study, research looked at the job evaluations that were completed based on

job descriptions or job title. Schwab and Heneman examined the effects of gathering more information on the accuracy of the job evaluation. They found that when raters were allowed to talk to one another and use each other as sources of information about the job, the compiled job evaluation ratings that resulted were more accurate and reliable than when the raters were not allowed to confer with each other. Ratings for each compensable factor were determined using group consensus. Instead of relying only on a written job description, raters were able to use other sources for information regarding the job, including each other. Schwab and Heneman's study illustrates the importance of not relying solely on the job description for completing job evaluation, and instead, having those completing the job evaluation use a variety of job information sources in order to get the most accurate and reliable ratings. Without a variety of sources of information, job analyses are less accurate.

Research on information provided through job descriptions to complete job analyses and job evaluations shows the importance of having an accurate and up-to-date job description. When job analysts rely on the job description to complete a job analysis, the content of the job description becomes critical (Friedman & Harvey, 1986; Smith et al., 1990). This is why the present study investigated job description content. If the job description is not providing the information recommended by the research (Brannick et al., 2007; Gael, 1988), then it will increase the likelihood of inaccurate job analyses, especially when those completing the job analysis are unfamiliar with the position and are relying

solely on the information provided in the job description (Friedman & Harvey, 1986).

Information used to complete job analyses and job evaluations can come from sources other than the job descriptions (Brannick et al., 2007). Information can also come from talking to and observing incumbents and supervisors (Arvey, Davis, McGowen, & Dipboye, 1982; Brannick et al., 2007; Morgeson & Campion, 1997). Morgeson and Campion (1997) state that the accuracy of ratings can be influenced through social bias. A 2004 study by Morgeson, Delaney-Klinger, Mayfield, Ferrara, and Campion supported Morgeson and Campion's (1997) postulate that impression management can lead to inaccuracy in the job analysis. The study examined the effects that incumbents have on the job analysis when they are trying to present themselves in a positive light to raters. The study found that the incumbents did influence the accuracy of the job analysis. It found that components of the job analysis that pertained to the worker's abilities were more influenced than the job analysis's task statements.

Morgeson et al. (2004) suggest that worker-oriented job analyses are more susceptible to this type of social influence than work-oriented methods. This could be due to the fact that abilities are less concrete and more difficult to observe than tasks. Given the susceptibility of the worker-oriented job analysis that is demonstrated by Morgeson et al. (2004), it is important to look at where the raters are getting the information when they fill out a job analysis form. This is especially important in the present study where worker-oriented job analyses were used.

Arvey et al. (1982) demonstrated that not every source of social influence negatively affects the accuracy of the job analysis ratings. They found that statements made by incumbents did not influence those completing the job analysis ratings. These researchers suggested that raters can determine the characteristics of the person from the characteristics of the job, and therefore overcome social influence that could bias the job analysis ratings. The lack of social influences found by Arvey at al. (1982) makes it important to look at what factors do influence the accuracy of job analyses.

A study conducted by Conley and Sackett (1987) looked at whether workers' performance influenced job analysis rating accuracy. Specifically, they examined whether or not there was a difference in the information provided by groups of incumbents that were rated as high-performing and groups of incumbents that were rated as low-performing. The resulting performance of the incumbents did not make a difference in the information that they provided in the job analysis. Job analyses that were completed by both the high and low performing groups were also found to be similar to the job analysis ratings completed by their supervisor. These results indicate that the performance of the incumbents does not make a difference in their ability to provide accurate job analysis ratings and information.

These studies demonstrate the importance of looking at the amount and type of information when evaluating the accuracy of job analysis and job evaluation ratings. More information is correlated to more accurate job analyses and job evaluations (Friedman & Harvey, 1986; Schwab & Heneman, 1986).

Raters and Accuracy

Research has found that job analyses can be influenced by the raters themselves (DeNisi, Cornelius, & Bledcoe, 1987; Lindell, Clause, Brandt, & Landis, 1998). The accuracy of the job analysis can vary for different rater variables, including position in the organization (Lindell et al., 1998) and familiarity with the position (DeNisi et al., 1987).

Lindell et al. (1998) found that a person's position in the organization can influence the frequency ratings for tasks (an indication of how often a task is performed) on a job analysis. People's views of the job can be influenced by the department or work group they are in. Lindell et al. (1998) referred to this as organizational context. People may be in the same job, but their positions vary slightly between departments and shifts. While there were variations in the frequency ratings as a function of the position a person was in, there were no significant differences in the ratings for the importance of the task. These ratings varied due to systematic within-job variations, such as the size and the effectiveness of the organization. While a particular position may require some job tasks more often than another position, the importance of the task does not significantly change from one position to another position in the same job category. This suggests that it is important to collect information regarding the raters' position in the organization as well as job context information for job analysis raters and take that into account when examining the results of the job analysis. The job context of the person completing the job analysis can make a difference in the results of the job analysis.

A study by Mueller and Belcher (2000) found that supervisors and incumbents rated tasks similarly on a job analysis. While there were some differences in ratings of worker attributes, or the parts of the job analysis that were worker-oriented, the aspects of the job analysis that were work-oriented were not significantly influenced by the position of the rater. This shows support for the research of Morgeson et al. (2007) illustrating that worker-oriented job analyses are more susceptible to inaccuracy than work-oriented job analyses.

Truxillo, Paronto, Collins, and Sulzer (2004) also found differences on some components of the job analysis ratings between supervisors and subordinates. Truxillo et al. (2004) examined the job analysis ratings of a police job by comparing the ratings given by district attorneys (the supervisor) and by police officers (the incumbents). They found that supervisors and incumbents agreed on the importance of the content aspect of report writing, but differed in their ratings of the importance of grammar in report writing. This shows that while there was some agreement, there were aspects of the ratings that varied depending on who was rating the job.

Smith and Hakel (1979) suggest that the expertise of the rater when using the PAQ did not make a difference in the ratings given on the PAQ. They found little difference in the ratings when comparing analyst source, whether they be incumbents, HR experts, or students. These results were later refuted by Cornelius, DeNisi, and Blencoe (1984) who believed that there were problems in the way Smith and Hakel (1979) conducted their analysis. Cornelius et al.'s (1984) replication of the Smith and Hakel study supported the idea that there were

problems with the analysis in the Smith and Hakel study. Cornelius et al. found that the type of rater, naïve or expert, did make a difference in the accuracy of the ratings.

DeNisi et al. (1987) further contradicted the results of Smith and Hakel (1979) by demonstrating that individuals not familiar with a position do not provide ratings equivalent to those who are familiar with the position. DeNisi et al. (1987) examined the ratings of participants at two separate times. First, the PAQ was completed after the raters had only seen the job title. A second PAQ was then completed once these same raters reviewed job materials, observed the job, and interviewed either incumbents or supervisors of the position. The PAQ ratings at each point were significantly different from each other. These authors suggest that naïve raters are not capable of providing accurate ratings on the PAQ despite earlier research that suggested that the expertise of the rater did not influence the ratings.

DeNisi et al. (1987) believed that Smith and Hakel (1979) found a high correlation between naïve and expert raters due to the number of “does not apply” boxes that were checked. In Smith and Hakel (1979), many of the tasks on the list were rated as “does not apply” by both the naïve and expert raters. When DeNisi et al. (1987) took out the task statements that were not applicable to the job, the correlation between the ratings of naïve raters and the ratings of the expert raters went down sharply. So, on tasks that are related to the job, there was a significant difference in the ratings of naïve and expert raters, thus indicating that who completes the PAQ influences the results. DeNisi et al. stated that the PAQ may

not be accurate when many of the items on the PAQ do not apply to the job. This means that the PAQ may not be appropriate for every job, especially when those jobs do not include many of the tasks statements listed on the PAQ.

Richman and Quinones (1996) examined how raters' participation and experience in the job influenced the frequency ratings of tasks. The researchers found that raters who participate and have a high level of experience are more accurate in their ratings than raters who observe and have a low level of experience. This means that HR professionals who have not performed the job, but have only observed the job being performed, will likely rate jobs less accurately than a person who is currently in that job, or a person who has performed that job in the past, like a supervisor.

A meta-analysis by Voskuijl and van Sliedregt (2002) also found that the type of rater used influences the reliability of a job analysis. In this meta-analysis, job analysts provided more reliable job analysis ratings when compared to people in the organization (supervisors and incumbents) and students. Job analysts had the most reliable ratings when they had contact with the job (or had experience in that job, or working alongside that job), when compared to the ratings when they just reviewed the job description.

Another meta-analysis of the reliability of job analyses found that raters were more reliable on task analyses than on general work activity, which is more of an overview of the work, rather than specified duties (Dierdorff & Wilson, 2003). Research and practice have shown a general move toward using more abstract descriptions when conducting job analysis, so that they may be more

broadly used. This allows HR departments to utilize one job description for a greater number of positions. The results of this meta-analysis indicate that moving towards more general task descriptions could lead to less reliability. However, the authors contend that this is only problematic if the job analysis is used as the basis for other HR functions, rather than simply for research, such as validation of pre-employment exam. Dierdorff and Wilson (2003) suggest that more specific tasks should be included in the job analysis to ensure greater reliability. This demonstrates the importance of considering the method of the job analysis to ensure proper reliability when using the job analysis as the basis for other HR functions. The method of the job analysis should reflect the purpose of the job analysis. When conducting a job analysis for the purposes of designing a selection tool, a more specific job analysis that gets at specific worker attributes or tasks and that was designed for purposes of designing a testing tool, should be performed. However, when performing a job analysis to get a general overview of the job, a more general job analysis such as the PAQ. HR professionals need to carefully consider the purpose of the job analysis before deciding how general or specific the job analysis should be.

Landy and Vasey (1991) found an even greater reason to collect demographic information on subject matter experts (SME's) completing job analysis questionnaires. They found that while education and race have a small impact on task ratings, the experience of an SME has a substantial influence on these ratings. They suggest that race and education do not need to be considered,

although this is often what is focused on in legal contentions. Instead the focus should be on making sure there is a diverse level of experience on SME panels.

A later study found that while raters did differ in their job specification ratings, this variance could not be explained by the position level, organizational differences, or demographic characteristics (Iddekinge, Putka, Raymark, & Eidson, 2005). This later study seems to be contrary to the results of Lindell et al. (1998). However, Iddekinge et al. (2005) could not account for the variance found. They explained it as idiosyncratic rater differences. In that the differences in ratings were not a result of the group that the raters belong to, but were due to individual differences that could not be readily seen. Iddekinge et al. also relied on transporting the job specifications survey without providing definitive support for the transportability. Their study demonstrates the need to further investigate the influence of raters on the job analysis and job evaluation results.

The individual differences that Iddekinge et al. (2005) alluded to could be found in the way the raters cognitively process the information (Morgeson & Campion, 1997). For example, Morgeson and Campion (1997) suggest that if an individual rater's ratings cannot be distinguished from others, and the task is not meaningful to the rater, then the raters may lose the motivation to be accurate in their ratings. Other cognitive sources of inaccuracy include information overload and both order and contrast effects. For example, when there are a lot of dimensions to rate, the information may become overwhelming and the accuracy of the ratings may decrease. Morgeson and Campion call for greater research into these individual differences in ratings.

It is clear that there are many things that can influence job analysis and job evaluation ratings. These influences include the amount of information (Friedman & Harvey, 1986), the type of rater (DeNisi et al., 1987), and the experience level of the rater (Landy & Vasey, 1991). Further investigation as to variables that can influence the accuracy of a job analysis is necessary (Morgeson and Campion, 1997). Given the wide range of uses for job analyses, it is no wonder that there is a renewed interest in the literature on examining what factors can influence job analysis ratings. The present study serves as further evidence that the results of the job analysis can vary based on who completes the job analysis.

## Rationale

Job descriptions and job analyses are used every day in organizations, and while research provides guidelines for what should be included in each of these and how each should be constructed (Brannick et al., 2007; Cascio, 1998), this is not necessarily what is done in practice. The first purpose of this study was to examine precisely what job descriptions in the field contain and to determine whether or not common practice is consistent with what is recommended in the literature.

The second purpose of this study was to examine the relationship between the job description and the job analysis. Brannick et al. (2007) suggest that the job description is based on a job analysis. However, Jones et al. (1982) argue that job analysis can be based on job description. Both Brannick et al. (2007) and Jones et al. (1982) imply that there should be significant overlap between a job

description and a job analysis for a given job because they both should have been based on information about the same job. This study demonstrated that the job analyses and job descriptions look different from one another in municipal jobs.

Previous research has shown that the person filling out a job analysis can affect the outcome and accuracy of the job analysis (DeNisi et al., 1987). DeNisi et al. (1987) showed ratings from those familiar with the position differ from the ratings of naïve raters. This implies that experts are utilizing different information, using the information differently than the naïve raters (i.e., those raters that have no specific experience or knowledge of the job). DeNisi et al. had limitations with respect to the implications that can be drawn. In DeNisi et al., the two rating conditions that were used were extreme. The first ratings were done by raters who only knew the job title for the job, and had no other information. Then these same raters rated the same job, but were presented with greater information, including familiarity with job materials, observation of the job and interviews with incumbents or supervisors, prior to conducting the ratings. In practice, rarely will someone completing a job analysis have such complete unfamiliarity with the position as the naïve raters had in the DeNisi et al. study.

The present study investigated the position and experience of the rater and how this influenced job analysis results when compared to the job description. However, this study looked at it in practice (in actual organizations), rather than in a lab setting. It also looked at it in the context of organizations that have limited budgets to spend on HR functions such as job analyses, rather than on Fortune 500 companies. This is important to keep in mind because of the

budgetary differences between Fortune 500 companies and small municipal governments. While large companies have dedicated HR departments with a budget that often includes funds for conducting job analyses, many smaller organizations do not have a budget that allows for these types of expenses. In practice, there are generally three groups of people that complete a job analysis: the incumbent, the supervisor, and the HR professional. The "naïve rater," or the one with the least amount of information about the job, is the HR professional. This study examined how similar the job description and job analysis are, in regards to the KSAs indicated as needed to perform the job, when the job analysis was completed by the HR professional compared with those completed by people supervising incumbents. Because the HR professionals may have relied solely on the job description as their source of information for the job analysis, their job analysis and job description were predicted to more closely match than when the job analysis completed by the supervisor was compared to the job description. Supervisors may have used other sources of information (e.g., observation or experience in the position) to complete the job analysis form, not just the job description.

## Statement of Hypotheses

Previous research has made very specific recommendations regarding what should be included in a job description and how long the job description should be (Brannick et al., 2007; Cascio, 1998). It has also been determined that job descriptions should be updated on a regular basis; however, it is not clear that job descriptions are updated regularly. In this study, the job descriptions were

taken from what already existed for the job in the municipality and the job analysis was filled out recently. It was believed that the job analysis would contain more current information than the job description. This lead to Hypothesis I.

Hypothesis I: There are significant differences between the required skills and abilities indicated in the job description and those listed on the job analysis.

In the data set that was used, the job analysis was either completed by an HR professional or by a supervisor of the job for which the job analysis was completed. Research has shown that people who are familiar with a job do not rate the job in the same way as people who are unfamiliar with that job (DeNisi et al., 1987; Richman & Quinones, 1996). While HR professionals may have some familiarity with the job, they generally do not have the same level of familiarity as someone who supervises that job. Previous research has also shown that the available information also influences the job analysis ratings (Friedman & Harvey, 1986; Schwab & Heneman, 1986). Those that have more information about a job are more accurate when completing a job analysis.

It was believed that supervisors would have more information on the job and be more familiar with it than HR professionals. HR professionals are more likely to rely on the job description for information on the job, while a supervisor is likely to rely more on observation and experience when completing the job analysis. Therefore, it was predicted that job analyses completed by HR professionals would more closely match the job description, while job analyses completed by supervisors would not as closely match the job description.

Hypothesis II: The agreement between the job analysis and the job description will be moderated by who completes the job analysis. There will be greater agreement between the job description and the job analysis when the job analysis is completed by an HR professional than when the job analysis is completed by a supervisor.

This study also examined whether or not the job descriptions collected in this study follow the format and content recommendations from the literature (Brannick et al., 2007).

Research Question I: Do the job descriptions in practice have Brannick et al.'s (2007) recommended components (i.e., identifiers, summary, duties and tasks, and other information)?

Research Question II: What components do job descriptions consistently have?

Research Question III: What components do job descriptions most frequently omit?

# CHAPTER II. METHOD

## Data

This study used existing data provided by a company located in the upper Midwest. The company specializes in designing selection and promotional exams for municipal government jobs. The data set consisted of a collection of job descriptions and job analysis forms submitted to the company as part of the process for the development of a written exam for municipal jobs. The job descriptions and job analyses were for a variety of jobs in municipal governments in approximately 20 different cities in the upper Midwest. These jobs included clerk, maintenance worker, and water and sewer technician, to name a few. They included entry-level jobs as well as promotion-level jobs within the government agency. The job descriptions were supplied by the municipal agency to the company. They were what the agency had on file, and were not created for or by the company.

The job analyses consisted of a job analysis form (see Appendix A) that was developed by the company and completed by an HR professional in the agency or a supervisor of the job in the agency. The job analysis form was designed by the company as part of the process for developing written exams for municipal government jobs. The job analysis form was worker-oriented because it was used for the purpose of developing a selection tool for job applicants (Brannick et al., 2007).

The data set contained 79 pairs of job descriptions and job analyses. However, four had to be eliminated because there was not enough information to

complete the analysis. So, 75 complete sets were used for this study. The names of those who completed the job analysis form were blacked out so that the data cannot be traced back to a specific person and only to the type of position that the person holds.

Two raters independently coded each job description and job analysis. These raters were I/O psychologists. The same two raters were used to code all of the data. Raters had a coding sheet (See Appendix B) on which they marked their observations and codes. A consensus sheet was then completed for any items where the raters did not agree. In these instances, raters met to determine the code on any item where there was a disagreement.

Job Description Coding

Raters first coded the job description. The raters determined whether the job description indicated if the job required the supervision of subordinates or not, whether the position was a promotion or not, and whether or not specific knowledge of the job was required before starting the job. Then, the raters coded the content of the job description. For this, raters determined which of the recommended components of a job description each job description contained. According to Brannick et al. (2007), job descriptions should contain all of the following components: job title, job location, summary, job duties and tasks, and miscellaneous. Raters simply circled “yes” or “no” regarding whether or not the job description had each component.

Raters then coded the skills and abilities that were in the job description. These skills and abilities were broad categories of skills and abilities, rather than

specific skills and abilities. For example, information ordering was a broad category. In this category skills or tasks included alphabetical filing as well as being able to sequence numbers. Categories under skills and abilities included reading comprehension, written communication, deductive reasoning, inductive reasoning, spatial orientation, selective attention, mathematical computation, mathematical problem solving, mechanical ability, equipment selection, flexibility of closure, information ordering, social perceptiveness, perceptual ability, and visualization.

The categories used were predetermined. The categories were listed on the job analysis form (Appendix A). These categories were developed by the company based on both survey research and O*NET. The categories were found to be the most frequently occurring skills and abilities and knowledge in the municipal jobs for which the company designed the tests.

The final item the raters coded from the job description was the knowledge required by the person performing the job. Knowledge was also put into broad categories. For example, knowledge of Excel fell into the broader category of computer literacy. This helped avoid the problem of being unable to match the exact wording between the job description and job analysis by instead using categories. The knowledge categories included: accounting, bookkeeping, city planning, construction, custodial, electrical, engineering, equipment operations, heating and refrigeration, inspection, landscaping, law, library, mechanics- automotive, mechanics- general, painting, plumbing, public relations, purchasing, recreations, water/sewer/wastewater, and zoning.

Raters were trained on the definition of each of the broad categories of the skills and abilities as well as the broad categories of knowledge. When knowledge, skills, and abilities (KSAs) were found on the job description that did not fit into these general categories, the raters conferred to determine whether a new category should be created or if the KSA belonged in a different category. The determination was made through consensus.

Raters also coded the job descriptions as to whether the job was white collar or blue collar. White collar jobs were defined as those that involved office work and non-manual labor. Blue collar jobs were defined as those that involved manual labor.

Inter-rater reliability for the job description coding was assessed using Cohen's kappa, a measure of reliability that takes into account the chance agreement between raters. The Inter-rater reliability was .90, but was then corrected so that there was 100% agreement. To correct for disagreement, raters met regarding any ratings that did not match and reached a consensus regarding the coding.

Job Analysis Coding

Once the raters finished coding the job description for a job, they coded the job analysis for that same job. The first part of the job analysis to code was the position the person that completed the job analysis held. Next the raters determined which skills and abilities categories and knowledge categories were indicated as required on the job analysis form. These categories were the same categories that were coded for in the job description.

Tasks were not compared because the job analysis form did not capture tasks. Therefore, there was nothing in the job analysis form to compare the tasks in the job description to.

Inter-rater reliability for the job description coding was assessed using Cohen's kappa, a measure of reliability that takes into account the chance agreement between raters. The Inter-rater reliability was .90. Once again, any areas of disagreement were corrected for so that there was 100% agreement. To correct for disagreement, raters met regarding any ratings that did not match and reached a consensus regarding the coding.

# CHAPTER III. RESULTS

## Descriptive Statistics

Before running analyses to examine the hypotheses and research questions, some preliminary statistics were examined. There were 29 job analyses completed by HR professionals (38.7%), 44 completed by supervisors (58.7%), one completed by an incumbent(1.3%), and one completed by other (1.3%, in that case a city clerk).

Forty-eight of the jobs (64.0%) were blue collar and 27 jobs (36.0%) were white collar. Of the jobs, 50.7% had supervisory responsibility, 57.3% were considered promotional, while 38.7% were considered entry level, and 85.3% of the jobs required the person in the job to have specific knowledge.

## Research Questions

### Research Question I

Descriptive statistics were run to explore Research Questions I, II, and III. Research Question I asked: Do the job descriptions in practice have Brannick et al.'s (2007) recommended components (i.e., identifiers, summary, duties and tasks, and other information)?

Every job description in the study contained a title (an identifier). Of the 75 job descriptions, 74.7% contained the location (another identifier), 96.0% contained a summary, 84.0% had a list of duties, and 93.3% included a miscellaneous section (See Table 1). The job descriptions ranged in length from a paragraph to several pages. Most of the job descriptions contained all of the sections recommended by Brannick et al. (2007).

Table 1

Frequencies and Percentages of Job Description Components Included in Job Descriptions

| Component | *Freq.* | Percent |
|---|---|---|
| Identifiers | | |
| Title | 75 | 100.0 |
| Location | 56 | 74.7 |
| Summary | 72 | 96.0 |
| Duties/Tasks | 63 | 84.0 |
| Miscellaneous | 70 | 93.3 |

Research Question II

Research Question II asked: What components do job descriptions consistently have? As stated earlier, every job description contained a title (a component of the identifier), making it the most frequently included section in the job descriptions (see Table 1). The summary was the second most consistent section included in the job descriptions. It was included in 96.0% of the job descriptions.

Research Question III

Research Question III asked: What components do job descriptions most frequently omit? The location was the most consistently omitted section in the job descriptions, with 74.7% of the job descriptions containing information regarding the location (a component of the identifier). A list of duties was contained in 84.0% of all of the job descriptions, making the job location and list of duties the most omitted sections in the job descriptions (see Table 1).

While 93.3% of the job descriptions contained a miscellaneous section, what was contained in the miscellaneous section varied widely. Some contained a specific list of KSAs, while others merely described the weather conditions to which those filling the job would be exposed.

## Hypothesis Testing

### Hypothesis I

Hypothesis I examined the differences between the required skills and abilities indicated in the job description and those listed on the job analysis. It stated: there are significant differences between the required skills and abilities indicated in the job description and those listed on the job analysis. In order to analyze Hypothesis I, a series of descriptive statistics were run. The first set of descriptive statistics looked at the mean number of times that there was agreement between the skills and abilities listed in the job descriptions with the skills and abilities on the job analyses. The average number of agreements was calculated by counting the number of times there was agreement between the job description and job analysis for every job on the skills and abilities, and finding the mean number of agreements on all jobs. There were a total of 15 skills and abilities that were examined, so a total of 15 agreements were possible (see Table 2). The mean agreement of skills and abilities between the job descriptions and job analyses was 7.56 ($SD$=3.30).

The second descriptive statistic that was run looked at the agreement between the knowledge listed in the job descriptions with the knowledge listed in the job analyses, where there were a total of 25 knowledge areas, making the total number of agreements possible 25. The average number of agreements was calculated by counting the number of times there was agreement between the job description and job analysis for every job on the knowledge areas, and finding the mean number of agreements on all jobs. The mean number of agreements was

Table 2

Means: Average Agreement Between Job Descriptions and Job Analyses

| | | Skills & Abilities (15) | | Knowledge (25) | | Total (40) | |
|---|---|---|---|---|---|---|---|
| Group | N | Mean | SD | Mean | SD | Mean | SD |
| All Cases | 75 | 7.56 | 3.30 | 21.21 | 2.25 | 28.77 | 4.50 |
| Supervisors Completed | 44 | 6.43 | 3.40 | 20.77 | 2.49 | 27.18 | 4.61 |
| HR Completed | 29 | 9.91 | 2.39 | 21.97 | 1.61 | 31.31 | 3.06 |
| Blue Collar Jobs | 48 | 6.27 | 3.15 | 20.31 | 2.17 | 26.60 | 3.84 |
| White Collar Jobs | 27 | 9.85 | 2.13 | 22.81 | 1.30 | 32.63 | 2.63 |

There were significant differences on the skills and abilities, knowledge, and total between the supervisors and the HR professionals ($p<.05$). There were significant differences on the skills and abilities and knowledge between the blue collar and white collar ($p<.05$).

Table 2 (Continued)

Means: Average Agreement Between Job Descriptions and Job Analyses

| | | Skills & Abilities (15) | | Knowledge (25) | | Total (40) | |
|---|---|---|---|---|---|---|---|
| Group | N | Mean | *SD* | Mean | *SD* | Mean | *SD* |
| Supervisors Completed, Blue Collar Jobs | 31 | 5.23 | 3.21 | 19.87 | 2.26 | 25.10 | 3.58 |
| Supervisors Completed, White Collar Jobs | 13 | 9.30 | 1.70 | 22.92 | 1.50 | 32.15 | 2.48 |
| HR Completed, Blue Collar Jobs | 16 | 8.31 | 1.92 | 21.31 | 1.66 | 29.69 | 2.27 |
| HR Complete, White Collar Jobs | 13 | 10.54 | 2.40 | 22.77 | 1.17 | 33.31 | 2.75 |

There were significant differences in the blue collar jobs between the HR professional group and the supervisor group on skills and abilities, knowledge and total ($p<.05$). There were no significant differences in the white collar jobs between the HR professional group and the supervisor group ($p>.05$).

21.21 (*SD*=2.25). The final descriptive statistic that was run to examine the first hypothesis was the mean agreement between all of the KSAs listed in the job descriptions with the KSAs listed on the job analyses. There were a total of 40 KSAs, meaning the total number of possible agreements was 40. The average number of agreements was calculated by counting the number of times there was agreement between the job description and job analysis for every job on all the KSAs, and finding the mean number of agreements on all jobs. The mean agreement between the KSAs on the job descriptions and job analyses was 28.77 (*SD*=4.50). As is demonstrated in these statistics, there were differences between the KSAs listed on the job descriptions and those indicated as needed on the job analyses.

To further examine Hypothesis I, the average number of KSAs that were indicated as needed on the job descriptions and job analyses were examined. To examine this, the number of KSAs that appeared on each job description and each job analysis were calculated. Then the mean number of KSAs on the job descriptions and the job analyses were found. The mean number of KSAs that appeared on the job descriptions was 10.56 (*SD*=4.28). The mean number of KSAs that were indicated as being needed on the job analyses was 17.69 (*SD*=6.05). These means were calculated by counting the total number of KSAs that received a value of one (or were coded as being on the job analysis and job description) for each job, and then finding the mean number of KSAs indicated on the job analyses and job descriptions for all the jobs. Because the number of KSAs for the job description and job analysis could be compared for each job,

and the data appeared to be normally distributed, a paired *t*-test was used. The number of KSAs on the job descriptions was compared to the number of KSAs on the job analyses. There was a significantly fewer KSAs on the job analyses than on the job descriptions ($t(74)=9.39$, $p<.01$). This indicates a lack of agreement between the job descriptions and job analyses.

Hypothesis II

In order to test Hypothesis II, the variable of who completed the job analysis was considered as a moderator of the agreement between the job analyses and the job descriptions. Hypothesis II stated: the agreement between the job analysis and the job description will be modified by who completes the job analysis. There were four categories of who completed the job analysis: a supervisor, an incumbent, an HR professional, and other. Since there were not enough job analyses completed by incumbents and others, only those job analysis and job description pairings where the job analysis was completed by a supervisor or an HR professional were examined. The average number of agreements was calculated by counting the number of times there was agreement between the job description and job analysis for every job on the skills and abilities, knowledge, and the total KSAs, and finding the mean number of agreements on all jobs. In examining the agreement between the job descriptions and the job analyses on the skills and abilities, two groups of means were run, one group for those where the job analyses were completed by a supervisor and one for those where the job analyses were completed by an HR professional (see Table 1). The mean agreement for the selected skills and abilities in the supervisor group was 6.43

(*SD*=3.40), while the mean agreement for the selected skills and abilities for the HR professionals group was 9.31 (*SD*=2.39). Since two groups that could not be matched were being compared and the data appeared to be normally distributed, an independent *t*-test was used to examine the difference between the agreements of the two groups. There was significantly more agreement ($t(71)=3.96$, $p<.01$) between the job analyses and job descriptions when the job analyses were completed by HR professionals than when they were completed by supervisors.

Skills and abilities were also separated to determine whether or not this made a difference in the number of agreements. Skills included: equipment selection, mathematical computation, reading comprehension, and social perceptiveness. Abilities included: deductive reasoning, flexibility of closure, inductive reasoning, information ordering, mathematical problem solving, mechanical reasoning, perceptual ability, selective attention, spatial orientation, visualization, and written expression. There were a total of 11 abilities and four skills. The mean agreement for abilities was 5.33 (*SD*=2.59), while the mean agreement for skills was 2.12 (*SD*=1.20). For the HR professionals group, the mean agreement for abilities was 6.59 (*SD*=2.20), while the mean agreement for the supervisors group was 4.55 (*SD*=2.56). Since the two groups could not be match, an independent *t*-test was used to compare these means. The HR professionals group had significantly greater agreement on abilities than did the supervisor group ($t(71)=3.53$, $p<.01$). The same statistics were run for skills. For the HR professionals group, the mean agreement for skills was 2.55 (*SD*=.95), while the mean agreement for the supervisor group was 1.82 (*SD*=1.28). Again,

the HR professionals group had significantly greater agreement than the supervisor group ($t(71)=2.64$, $p<.05$).

The mean agreement for the supervisor group on required knowledge was 20.77 (*SD*=2.49), and the mean agreement for the HR professionals group on required knowledge was 21.97 (*SD*=1.61). Using a paired *t*-test, the agreement of the HR professionals was compared to the agreement of the supervisors. There was significantly higher agreement for the HR professionals group than for the supervisors group ($t(71)=2.28$, $p<.05$).

The mean agreement between the job descriptions and job analyses for the supervisor group when all the KSAs were examined together was 27.18 (*SD*=4.61). With the HR professionals, these same analyses resulted in a mean agreement of 31.31 (*SD*=3.06). Using a paired *t*-test, the HR professionals group's agreement was compared to the supervisors group's agreement. The HR professionals group had significantly higher agreement on all KSAs than the supervisors group ($t(71)=4.24$, $p<.01$). This shows that there was significantly higher agreement when the job analysis was completed by an HR professional than when the job analysis was completed by a supervisor.

## Additional Analyses

There was a difference in the percentage of agreement between the skills and abilities and the knowledge areas. The percent of agreement was calculated by taking the number of agreements between the job description and job analysis on each job and dividing that by the total agreements possible. Then the percent of agreements between the job descriptions and job analyses for the skills and

abilities was compared to the percent of agreements between the job descriptions and the job analyses for the knowledge areas. The mean percentage of agreement for skills and abilities was 50.41% (*SD*=21.98) while the mean percentage of agreement for knowledge areas was 84.85% (*SD*=9.00). A paired *t*-test was used because the data appeared to be normally distributed and the data could be compared between each job. Using this paired *t*-test, the percent agreement between the skills and abilities and the knowledge areas were compared. There was significantly greater agreement between the job descriptions and the job analyses in the knowledge areas than there was in the skills and abilities ($t(74)=14.07$, $p<.01$).

The percent of agreement between skills and abilities was also compared. The mean percent agreement for abilities was 48.48 (*SD*=23.51), while the mean percent agreement for skills was 53.00 (*SD*=29.91). Using a paired *t*-test, the percent agreement between abilities and skills was compared. There was not a significant difference in the average agreement between skills and abilities ($t(74)=-1.31$, $p>.05$).

To determine if the type of job influenced the average agreement, analyses were also run separately on jobs that were white collar and jobs that were blue collar (see Table 2). The average number of agreements was calculated by counting the number of times there was agreement between the job description and job analysis for every job on the skills and abilities, knowledge, and the total KSAs, and finding the mean number of agreements on all jobs. The mean agreement between the job descriptions and the job analyses on the skills and

abilities required to perform blue collar jobs was 6.27 (*SD*=3.15), while the mean agreement on skills and abilities required to perform white collar jobs was 9.85 (*SD*=2.13). There were 15 total possible agreements. Because the two groups could not be directly matched, and the data appeared to be normally distributed an independent *t*-test was appropriate. Using an independent *t*-test, it was found that there was significantly higher average agreement for the white collar jobs that for the blue collar jobs ($t(73)=5.27$, $p<.01$). The mean agreement between the job descriptions and the job analyses on the knowledge needed in blue collar jobs was 20.31 (*SD*=2.17). The mean agreement on the knowledge needed in white collar jobs was 22.81 (*SD*=1.30). There were a total of 25 possible agreements. Using an independent *t*-test, white collar jobs were found to have a significantly higher average agreement than blue collar jobs ($t(73)=5.45$, $p<.01$). The mean agreement between the job descriptions and the job analyses on all KSAs needed in blue collar jobs was 26.60 (*SD*=3.84), while the mean agreement on all KSAs needed in white collar jobs was 32.63 (*SD*=2.63). There were a total of 40 possible agreements. Using an independent *t*-test, the total average agreement between white collar jobs and blue collar jobs was compared. There was not a significant difference in the average agreement ($t(73)=7.25$, $p>.01$). So, when the components of the job descriptions and job analyses were broken down, there was significantly greater agreement for white collar jobs than there was for blue collar jobs.

How each type of job analysis rater rated each type of job was also examined. To do this, the average number of agreements was calculated by

counting the number of times there was agreement between the job description and job analysis for every job on the skills and abilities, knowledge, and the total KSAs, and then finding the mean number of agreements for all jobs. The mean agreement between the job descriptions and the job analyses on the skills and abilities required for blue collar jobs, where the job analyses were completed by a supervisor was 5.23 (*SD*=3.21). The mean agreement on skills and abilities required for blue collar jobs, where the job analyses were completed by an HR professional was 8.31 (*SD*=1.92). There were a total of 15 possible agreements. Because the two groups could not be matched, and independent *t*-test was used to compare the average agreement. Blue collar jobs where the job analysis was completed by an HR professional had significantly greater agreement than blue collar jobs where the job analyses were completed by a supervisor ($t(45)=3.52$, $p<.01$). For white collar jobs, the mean agreement between the job descriptions and the job analyses on skills and abilities when the job analyses were completed by a supervisor was 9.30 (*SD*=1.70). When the job analyses were completed by an HR professional the mean agreement was 10.54 (*SD*=2.40). Using an independent *t*-test, the average agreement was compared. White collar jobs where the job analyses were completed by an HR professional did not have significantly different agreement on skills and abilities than white collar jobs where the job analyses were completed by a supervisor ($t(24)=1.51$, $p>.05$).

The mean agreement between the job descriptions and the job analyses on the knowledge needed in blue collar jobs, where the job analyses were completed by a supervisor was 19.87 (*SD*=2.26). There were a total of 25 possible

agreements. The mean agreement on the knowledge needed in blue collar jobs, where the job analyses were completed by an HR professional was 21.31 (*SD*=1.66). Using a paired *t*-test, the average agreement was compared. Blue collar jobs where the job analyses were completed by an HR professional had significantly greater agreement on knowledge areas than blue collar jobs where the job analyses were completed by a supervisor ($t(45)=2.25$, $p<.05$). For white collar jobs, the mean agreement between the job descriptions and the job analyses when the job analyses were completed by a supervisor was 22.92 (*SD*=1.50). When the job analyses were completed by an HR professional the mean agreement was 22.77 (*SD*=1.17). Using a paired *t*-test, the average agreement was compared. White collar jobs where the job analyses were completed by an HR professional did not have significantly different agreement on knowledge areas than white collar jobs where the job analyses were completed by a supervisor ($t(24)=.-.29$, $p>.05$).

The mean agreement between the job descriptions and the job analyses on all KSAs needed in blue collar jobs, where the job analyses were completed by a supervisor was 25.10 (*SD*=3.58). There were a total of 40 possible agreements. The mean agreement on all KSAs needed in blue collar jobs, where the job analyses were completed by an HR professional was 29.69 (*SD*=2.27). Using a paired *t*-test, the average agreement was compared. Blue collar jobs where the job analyses were completed by an HR professional had significantly greater agreement on all KSAs than blue collar jobs where the job analyses were completed by a supervisor ($t(45)=4.65$, $p<.01$). For white collar jobs, the mean

agreement between the job description and the job analyses when the job analyses were completed by a supervisor was 32.15 (*SD*=2.48). When the job analyses were completed by an HR professional the mean agreement was 33.31(*SD*=2.75). Using a paired *t*-test, the average agreement was compared. White collar jobs where the job analyses were completed by an HR professional did not have significantly different agreement on all KSAs than white collar jobs where the job analyses were completed by a supervisor ($t(24)=1.12$, $p>.05$).

There were significant differences between the levels of agreement between the supervisor group and the HR group for blue collar jobs. However, there were not significant differences between the levels of agreement between the supervisor group and the HR group for white collar jobs. The differences between the two groups are greater when the jobs are blue collar than when the jobs are white collar.

Descriptive statistics were also run to determine which KSAs most often appeared on the job descriptions and the job analyses (see Table 3 and Table 4). To calculate this, the number of times each KSA appeared on the job descriptions was counted and this was then divided by the number of job descriptions to determine the percentage. The same thing was done for the job analyses. The skills and abilities that appeared most frequently on the job descriptions were written expression, which appeared on 82.7% of the job descriptions, social perceptiveness, which appeared on 73.3% of the job descriptions, and reading comprehension, which appeared on 60.0% of the job descriptions. The skills and abilities that were indicated as needed most frequently on the job analyses were

Table 3

Frequencies: Skills & Abilities

| | Job Description | | Job Analysis | |
|---|---|---|---|---|
| Skills & Abilities | *Freq.* | Percent | *Freq.* | Percent |
| Deductive Reasoning | 40 | 53.3 | 69 | 92.0 |
| Equipment Operation | 25 | 33.3 | 50 | 66.7 |
| Flexibility of Closure | 2 | 2.7 | 39 | 52.0 |
| Inductive Reasoning | 32 | 42.7 | 58 | 77.3 |
| Information Ordering | 7 | 9.3 | 62 | 82.7 |
| Mathematical Computation | 26 | 34.7 | 69 | 92.0 |
| Mathematical Problem Solving | 14 | 18.7 | 67 | 89.3 |
| Mechanical Reasoning | 23 | 30.7 | 47 | 62.7 |
| Perceptual Ability | 22 | 29.3 | 50 | 66.7 |
| Reading Comprehension | 45 | 60.0 | 75 | 100.0 |
| Selective Attention | 4 | 5.3 | 55 | 73.3 |
| Social Perceptiveness | 55 | 73.3 | 55 | 73.3 |
| Spatial Orientation | 20 | 26.7 | 49 | 65.3 |
| Visualization | 8 | 10.7 | 41 | 54.7 |
| Written Expression | 62 | 82.7 | 62 | 82.7 |

Table 4

Frequencies: Knowledge

| | Job Description | | Job Analysis | |
|---|---|---|---|---|
| Knowledge | *Freq.* | Percent | *Freq.* | Percent |
| Computer Literacy | 24 | 32.0 | 51 | 68.0 |
| Safe Driving Practices | 51 | 68.0 | 51 | 68.0 |
| Customer Service | 54 | 72.0 | 61 | 81.3 |
| Accounting | 14 | 18.7 | 16 | 21.3 |
| Bookkeeping | 12 | 16.0 | 14 | 18.7 |
| City Planning | 1 | 1.3 | 0 | 0.0 |
| Construction | 26 | 34.7 | 32 | 42.7 |
| Custodial | 11 | 14.7 | 12 | 16.0 |
| Electrical | 9 | 12.0 | 12 | 16.0 |
| Engineering | 14 | 18.7 | 19 | 25.3 |
| Equipment Operations | 33 | 44.0 | 40 | 53.3 |
| Heating & Refrigeration | 3 | 3.0 | 6 | 8.3 |
| Inspection | 9 | 12.0 | 15 | 20.0 |
| Landscaping | 14 | 18.7 | 17 | 22.7 |
| Law | 17 | 22.7 | 7 | 9.3 |
| Library Science | 0 | 0.0 | 0 | 0.0 |

Table 4 (Continued)

Frequencies: Knowledge

| | Job Description | | Job Analysis | |
|---|---|---|---|---|
| Knowledge | *Freq.* | Percent | *Freq.* | Percent |
| Mechanical – Automotive | 6 | 8.0 | 9 | 12.0 |
| Mechanical – General | 26 | 34.7 | 15 | 20.0 |
| Painting | 11 | 14.7 | 16 | 21.3 |
| Plumbing | 17 | 22.7 | 18 | 24.0 |
| Public Relations | 3 | 4.0 | 19 | 25.3 |
| Purchasing | 4 | 5.3 | 9 | 12.0 |
| Recreation | 6 | 8.0 | 4 | 5.3 |
| Water/Sewer/Waste Water | 35 | 46.7 | 34 | 45.3 |
| Zoning | 2 | 2.7 | 2 | 2.7 |

reading comprehension, on 100.0% of the job analyses, mathematical computation, on 69.0% of the job analyses, and deductive reasoning, on 69.0% of the job analyses.

The knowledge areas that most often appeared on the job descriptions were customer service, on 72.0% of the job descriptions, safe driving practices, on 68.0% of the job descriptions, and water/sewer/waste water, on 46.7% of the job descriptions. The knowledge areas that were most often selected as being required on the job analyses were customer service, which appeared on 81.3% of the job analyses, computer literacy, which appeared on 68.0% of the job analyses, and safe driving practices, which appeared on 68.0% of the job analyses.

Descriptive statistics were also run to determine whether the job descriptions and job analyses agreed more frequently on certain KSAs than on other KSAs. Two separate descriptive statistics were run. One looked at the number of agreements between the job descriptions and job analyses where the agreement came from the KSA being needed, and one where the agreement came from the KSA being not needed (see Table 5 and Table 6).

The skills and abilities on which the job descriptions and job analyses most often agreed that they were needed were written expression with 69.3% agreement, reading comprehension with 60.0% agreement, and social perceptiveness with 53.3% agreement. The skills and abilities on which the job descriptions and job analyses most often agreed that they were not needed were flexibility of closure with 48.0% agreement, visualization with 44.0% agreement, and mechanical reasoning with 32.0% agreement.

Table 5

Frequencies: Agreement of Skills and Abilities Between Job Descriptions and Job Analyses

| | Not Needed | | Needed | |
|---|---|---|---|---|
| Skills & Abilities | *Freq.* | Percent | *Freq.* | Percent |
| Deductive Reasoning | 4 | 5.3 | 38 | 50.7 |
| Equipment Operation | 22 | 29.3 | 22 | 29.3 |
| Flexibility of Closure | 36 | 48.0 | 2 | 2.7 |
| Inductive Reasoning | 14 | 18.7 | 29 | 38.7 |
| Information Ordering | 13 | 17.3 | 7 | 9.3 |
| Mathematical Computation | 5 | 6.7 | 25 | 33.3 |
| Mathematical Problem Solving | 7 | 9.3 | 13 | 17.3 |
| Mechanical Reasoning | 24 | 32.0 | 19 | 25.3 |
| Perceptual Ability | 20 | 26.7 | 17 | 22.7 |
| Reading Comprehension | 0 | 0.0 | 45 | 60.0 |
| Selective Attention | 20 | 26.7 | 4 | 5.3 |
| Social Perceptiveness | 5 | 6.7 | 40 | 53.3 |
| Spatial Orientation | 23 | 30.7 | 17 | 22.7 |
| Visualization | 33 | 44.0 | 7 | 9.3 |
| Written Expression | 3 | 4.0 | 52 | 69.3 |

Table 6

Frequencies: Agreement of Knowledge Between Job Descriptions and Job Analyses

| | Not Needed | | Needed | |
|---|---|---|---|---|
| Knowledge | *Freq.* | Percent | *Freq.* | Percent |
| Computer Literacy | 24 | 32.0 | 24 | 32.0 |
| Safe Driving Practices | 16 | 21.3 | 43 | 57.3 |
| Customer Service | 8 | 10.7 | 48 | 64.0 |
| Accounting | 57 | 76.0 | 12 | 16.0 |
| Bookkeeping | 59 | 78.7 | 10 | 13.3 |
| City Planning | 74 | 98.7 | 0 | 0.0 |
| Construction | 36 | 48.0 | 19 | 25.3 |
| Custodial | 58 | 77.3 | 6 | 8.0 |
| Electrical | 60 | 80.0 | 6 | 8.0 |
| Engineering | 53 | 70.7 | 11 | 14.7 |
| Equipment Operations | 27 | 36.0 | 30 | 40.0 |
| Heating & Refrigeration | 68 | 90.7 | 2 | 2.7 |
| Inspection | 56 | 74.7 | 5 | 6.7 |
| Landscaping | 55 | 73.3 | 11 | 14.7 |
| Law | 56 | 74.7 | 5 | 6.7 |

Table 6 (Continued)

Frequencies: Agreement of Knowledge Between Job Descriptions and Job Analyses

| | Not Needed | | Needed | |
|---|---|---|---|---|
| Knowledge | *Freq.* | Percent | *Freq.* | Percent |
| Library Science | 75 | 100.0 | 0 | 0.0 |
| Mechanical – Automotive | 62 | 82.7 | 2 | 2.7 |
| Mechanical – General | 43 | 57.3 | 9 | 12.0 |
| Painting | 56 | 74.7 | 8 | 10.7 |
| Plumbing | 53 | 70.7 | 13 | 17.3 |
| Public Relations | 54 | 72.0 | 1 | 1.3 |
| Purchasing | 66 | 88.0 | 4 | 5.3 |
| Recreation | 69 | 92.0 | 0 | 0.0 |
| Water/Sewer/Waste Water | 31 | 41.3 | 25 | 33.3 |
| Zoning | 72 | 96.0 | 1 | 1.3 |

The knowledge areas on which the job descriptions and job analyses most often agreed that the areas were needed were customer service with 64.0% agreement, safe driving practices with 57.3% agreement, and equipment operations with 40.0% agreement. The knowledge areas on which the job descriptions and job analyses most often agreed that the areas were not needed were library science with 100.0% agreement, city planning with 98.7% agreement, and zoning with 96.0% agreement.

# CHAPTER IV. DISCUSSION

The results of this study show that the majority of the job descriptions contain the components recommended by Brannick et al.'s (2007) (i.e., identifiers, summary, duties and tasks, and other information). Although all of the job descriptions contained the job title, only 74.7% contained the location (both indicators). So, there was not complete compliance with the recommendations.

Hypothesis I was supported. Hypothesis I predicted that there would be significant differences between the required skills and abilities indicated in the job description and those listed on the job analysis. The job analyses had significantly higher average numbers of KSAs indicated as needed than did the job descriptions. This could indicate that the job descriptions do not contain all of the KSAs necessary to perform the job or that the job description only contained the most critical KSAs needed to perform the job. The other possible interpretation of this is that those completing the job analyses have other sources of information about the job to determine what KSAs are needed by those that are hired for the job.

Hypothesis II was also supported. Hypothesis II predicted that the agreement between the job analysis and the job description would be moderated by who completes the job analysis. There was significantly greater average agreement between the job descriptions and job analyses when an HR professional completed the job analyses than when a supervisor completed the job analyses. This supports the idea that HR professionals may be utilizing the job descriptions to get information to complete the job analyses, while supervisors are

completing the job analyses based on other information sources. The possibility that not all of the needed KSAs are included in the job descriptions suggests that there should be greater concern regarding the content of the job descriptions. This is especially a concern when HR professionals are being asked to complete job analyses.

In the municipalities represented in this study, supervisors are most often given the responsibility of completing the job analyses for testing purposes. If the low level of agreement between the job descriptions and the job analyses completed by supervisors is due to the fact that the job description has not been updated, then supervisors should be completing the job analyses to ensure that all the KSAs required to perform the job are included. HR professionals would not know all the needed KSAs if they were not listed on the job description.

There was greater agreement between the job descriptions and the job analyses in the knowledge section, where they agreed an average of 84.9% of the time compared to the skills and abilities section where they agreed an average of 50.4% of the time. This may be caused by several different things. First, knowledge may be more concrete and easier to identify than skills and abilities. Second, municipalities may do a better job in spelling out knowledge required to perform a job in the job descriptions than they do spelling out the skills and abilities required to perform a job in the job description. Third, there may have been more knowledge areas that were clearly not part of the job than there were skills and abilities that were not clearly part of the job. This may explain the resulting higher agreement in what was not part of the job in the knowledge areas

than in the skills and abilities. For example, a general laborer may need to know how to operate equipment and have knowledge of construction techniques, but the laborer clearly does not need accounting, bookkeeping, law, library science, city planning, public relations, and purchasing knowledge.

Dierdorff and Wilson (2003) found that raters were more reliable on rating specific tasks than on broader categories. The job analyses used broad categories, and one form was used across jobs, making broader dimensions necessary. This may explain why there was a low average agreement between the job descriptions and the job analyses. Dierdorff and Wilson's (2003) meta-analysis looked at the reliability between raters and although they were not looking at the agreement between job analyses and job descriptions, their findings could be applied to this study. More abstract dimensions are linked to lower reliability, which may relate to the low agreement in this study.

Morgeson et al. (2004) might provide another insight as to why there was not a high level of agreement between the job descriptions and the job analyses, and why there was less agreement when the job analyses were completed by supervisor. Morgeson et al. (2004) state that worker-oriented job analyses, which is what was used in this study, are more susceptible to impression management than are work-oriented job analyses. In Morgeson et al.'s study they looked at incumbents influencing the job analysis ratings to build themselves up, and make it appear that they had more skills. In this study, it is possible that the supervisors are building their subordinates up, and making it appear in the job analyses that they need more KSAs. Supervisors may also be influencing the job analysis

ratings because they want workers that have more KSAs than what is actually required of those in the job.

In this day and age where municipalities have shrinking tax revenue, departments are expected to do more with fewer people. These job analyses that state that more KSAs are required than what is listed in the job description may be a reflection of the changing requirements of the job due to shrinking budgets. The job descriptions have not yet been updated to reflect the changes in the job. This could help to explain why there was a greater average number of KSAs listed on the job analyses than on the job descriptions.

Another interesting finding of this study was that there was significantly greater agreement between the job descriptions and job analyses for white collar jobs than for blue collar jobs when the skills and abilities and knowledge areas were compared separately. This may be due to the fact that white collar job descriptions do a better job of listing abstract KSAs, and it is more clear that they need some of these KSAs, because white collar jobs tend to involve more abstract concepts. For example, the white collar job descriptions might list a task such as "work with residents to solve problems on their utility bill." This simple statement can involve several abstract KSAs such as deductive reasoning, customer service, and mathematical problem solving. Whereas a task on a blue collar job description might list a task such as "operate a backhoe to dig a ditch." This statement involves only one clear KSA: equipment operation. While deductive reasoning skills may be needed to perform this task, it is not as clearly listed in the task description on the job description, causing the person completing

the job analysis to select deductive reasoning as being required, without it being stated as needed in the job description.

There were significant differences between the supervisor group and the HR professional group for the KSAs indicated as needed for the blue collar jobs. HR professionals had significantly more agreement than the supervisors on blue collar jobs. However, there was not a significant difference in the agreement between the two groups for white collar jobs. This seems to be consistent with the other findings. There was greater agreement in white collar jobs and by HR professionals.

The skills and abilities that appeared most frequently on the job descriptions were written expression, social perceptiveness, and reading comprehension. These skills and abilities were very clearly and easily stated in a few words in the job descriptions, which may be why they are the most frequently seen. Reading comprehension was most often found in the job descriptions in phrases such as “able to understand written and oral instructions.” Written expression was exemplified in phrases like “able to communicate verbally and in writing.” Social perceptiveness was most often indicated as being needed in such phrases as “able to maintain good working relationships with coworkers, vendors, and customers.” These phrases succinctly state specific skills and abilities. The knowledge areas that appeared most often in the job descriptions were customer service, safe driving skills, and water/sewer/waste water. Once again safe driving skills and customer service were often clearly stated in the job descriptions in phrases such as “able to safely operate department vehicles” and “able to maintain

good working relationships with coworkers, vendors, and customers." These again were knowledge areas that are clearly described in a sentence and are not very abstract.

The KSAs that were most often selected as being needed to perform the job tended to be things that every person should have, but may be areas that are often over looked in job descriptions because they are considered "obvious". For example, computer literacy was a frequently selected knowledge area on the job analyses. However, not nearly as many job descriptions listed this as a required knowledge area. This may be because it is an obvious requirement for people in the job, especially white collar jobs, where computers are involved in almost every task. It might also be because several of the job descriptions that did have dates as to when they were last updated showed dates in the 1980s and early 1990s, when computers were not involved in every task that was performed.

Another interesting finding was the KSAs that were most often agreed upon between the job descriptions and the job analyses. The study broke down the agreement for this set of analyses into two categories: agreement that the KSA was needed and agreement that the KSA was not needed. The skills and abilities that were most often agreed upon as being needed were: written expression, reading comprehension, and social perceptiveness. The skills and abilities that were most often agreed upon as not being needed were: flexibility of closure, visualization, and mechanical reasoning.

The needed skills and abilities are similar to those that were most commonly found in the job description, and are skills and abilities that are easy to

state as being needed in phrases such as: “able to communicate verbally and in writing” or “able to understand written and oral instructions”. The skills and abilities that were most frequently agreed upon as not being needed were more abstract and were difficult to clearly state in sentence in the job description. For example visualization might appear in a job description of a task such as “examine floor tiles to determine which tiles need to be replaced and how many are needed”. In this statement, there is no clear statement that flexibility of closure, the ability to detect known patterns in distracting material, is needed. The task needs to be analyzed to determine what skills and abilities are needed to complete this task. In addition, a phrase that specific is not often listed on the job description, where things tend to be stated in broader terms, such as “perform repairs to floors”. This also seems to be in line with the research by Dierdorff and Wilson (2003), where raters were more accurate when rating more specific tasks, than when rating more generalized and abstract tasks.

The knowledge areas that were most often selected as being needed also seem to fit the idea that more specific and easy to understand dimensions are more often selected, and there is greater agreement. The knowledge areas that most frequently had agreement between the job descriptions and the job analyses were: customer service, safe driving practices, and equipment operations.

However, the knowledge areas that most frequently had agreement between the job descriptions and the job analyses as being not needed seem to be for a different reason. Those knowledge areas most often agreed on as being not needed were: library science, city planning, and zoning. These also happened to

be the knowledge areas there were least often indicated as being needed on the job descriptions and the job analyses. It is easy to understand what these knowledge areas entail, and they are just simply not needed by most of the jobs that were examined in this study, so it makes it more likely that the job description and job analyses will both not have these areas listed as being needed by the person filling the job.

## Limitations

This study was limited by the fact that only municipal jobs were examined. There may be differences between municipalities and Fortune 500 companies. Generally, the HR departments and the HR budgets are very limited in municipalities, where this is less likely true in Fortune 500 companies. So, the results of this study cannot be generalized to other larger organizations.

The study was also limited by the fact that this was an existing data set, therefore no additional data could be collected, nor could any clarification be obtained. Dates that the job descriptions were last updated were only listed on some of the job descriptions. This would have been something that was interesting to explore since several of the job descriptions discussed “typing skills” but did not specifically mention computers. It would have also helped to know if there were budget cuts to the department where the job is located. This may have indicated an increased amount of responsibilities and therefore an increased number of KSAs. This could have helped explain the low average agreement between the job descriptions and the job analyses.

Another limitation was that the job analyses used in this study were designed and completed as part of the design of a test for applicants to the position, and not an overall job analysis of the position. A written exam can only measure certain things, so the job analyses form was limited to those areas that could be measured in a written exam, and not those KSAs that do not easily translate into a written exam. There was also only one rater per job analysis. The differences in ratings between raters in a particular job could not be analyzed. This meant that the study could not examine reliability.

The size of the departments and the number of people in the job also served as a limitation. Even if the job analyses had been given to all incumbents or people that supervise the job, this often would have only been two or three people. The jobs that were examined in this study were often in small or medium departments where there are only one or two people that perform that job within the municipality. If larger municipalities were examined where there are a greater number of people that perform the job, more job analysis data could have been collected.

The size of the data set was also a limitation. When the data was broken down into subsets, such as blue collar jobs where the job analyses were completed by an HR professional or white collar jobs where the job analyses were completed by a supervisor, the sample sizes were relatively small. Had the sample size been larger, more significant differences may have been found.

Perhaps the biggest limitation of the study is that it did not determine whether HR professionals or supervisors were more accurate in their job analysis

ratings, it only measured the agreement their ratings had with the job descriptions. The data that was in the existing data set did not lend itself to measures of reliability and accuracy. However, this leaves room for further research comparing the accuracy of job analysis ratings between HR professionals and supervisors in real world settings.

## Implications and Future Research

This study shows that most job descriptions in municipal government contain the components recommended by Brannick et al. (2007). But it also demonstrates the need for greater research in the area of job descriptions. While a job description may have the recommended sections, what is contained in these sections may vary widely. Cascio (1998) and Brannick et al. (2007) make clear recommendations on what the content of the job descriptions should be, but there has been very little research on job descriptions themselves. Further research needs to be conducted to determine if other types of organizations follow the recommendations.

Jones et al. (1992) looked at the average length of job descriptions, stating that most were between two and three pages, which is consistent with the recommendations set forth by Gael (1988). However, the rest of the research of content and structure of job descriptions is rather sparse. This leaves an opening for new research to be done on job descriptions. Research should also be conducted to determine what types of things are most frequently contained in each section. For example, does the miscellaneous section of the job description

contain a list of required KSAs, a description of working conditions, a list of equipment that is used, or other information.

One of the most significant contributions of this study is to further illustrate that who completes a job analysis and the amount of information that the person has regarding the job influences the job analysis. And while this study did not measure the accuracy of the job analyses, the results are in line with research by Richman and Quionones (1996), Hahn and Dipboye (1998), Morgeson and Campion (1997), and many others who found that the amount and type of information that the person completing the analysis has, as well as their exposure to the job can influence the accuracy of the job analysis ratings. HR professionals and supervisors were found to differ in the amount of agreement between the job descriptions and the job analyses. Who completes the job analyses is related to the results of the job analyses.

This has implications for the soundness of the validation of exams. Meritt-Haston and Wezley (1983) found that advanced degree requirements for people applying for various jobs are upheld in court if a job analysis indicates that advanced knowledge is needed. If who completes the job analysis can influence whether or not the job analysis states that advanced knowledge is needed, which was found to be true in this study, organizations could face problems defending the relevance of required knowledge in court.

Veres et al. (1987) also found that job analyses are vital to demonstrating the link between work behaviors and the needed KSAs when defending the job requirements in court. Organizations need to ensure that the KSAs selected in the

job analyses reflect those that are truly required by a person in the job. This means making a determination of who is more accurate in completing the job analyses, HR professionals or supervisors. Making good decisions in the completion of the job analysis will mean being able to defend hiring decisions later in court.

HR professionals and supervisors have significantly different levels of agreement with the job description for various municipal positions. Given this information, municipalities need to consider carefully who completes the job analysis surveys used to develop selection tools for jobs.

This study goes beyond what has been done in lab studies, and looks at job analyses that are utilized to design selection exams. The impact of the job analyses and the accuracy of these job analyses have far greater implications than job analyses completed in a lab study. This study shows the need for greater research in the real world settings, ranging from jobs in Fortune 500 companies, to those in small municipalities and organizations.

This study also has implications for the writing of job descriptions. The fact that many KSAs were indicated as being needed in the job analyses but were not listed in the job descriptions, indicates that there are discrepancies between the job descriptions and job analyses in practice. While it is not necessary to have everything in the job analysis listed in the job description, things such as problem solving (deductive reasoning) and computer literacy are important KSAs and seem to be something that should not be overlooked.

Further research should be done on how changing economic conditions affects job analyses and job descriptions. Those filling jobs today may have more responsibilities and more required KSAs than those who had that same job 5 years ago. This change in the economic climate may explain why so many more KSAs were selected in the job analyses than were indicated as being needed in the job descriptions. More research needs to be done to determine if there is in fact a link between the amount of KSAs required and the economic climate.

Research that extends beyond the lab and looks at how both small and large organizations handle job descriptions and job analyses, and what affects the agreement and accuracy of the job analyses is needed. While Fortune 500 companies have the money to spend on HR functions, and can follow the recommendations set forth in the research, smaller organizations do not always have the budget or capabilities to do so. With the current economic conditions, they may be limited even further.

# CHAPTER V. SUMMARY

Job descriptions and job analyses are used every day in organizations, and while research provides guidelines for what should be included in each of these and how each should be constructed (Brannick et al., 2007; Cascio, 1998), this is not necessarily what is done in practice. This study set out to examine what recommended components of a job description do job descriptions written for municipal jobs contain. The study also set out to examine how closely job descriptions and job analyses for municipal positions agree, and to determine if the person completing the job analyses (and what their job is in the organization) influences the amount of agreement.

The study found that most job descriptions contain the components recommended by Brannick et al. (2007). Those recommended components include: identifiers (title and location), summary, duties and tasks, and other information (miscellaneous). Every job description contained a title. The component that was most excluded was the job location. The study showed that most job descriptions for municipal positions do contain the recommended components.

The study also found that there were significant differences between the job descriptions and the job analyses. It was also found that when the job analyses were completed by an HR professional, the average agreement was significantly higher than when the job analyses were completed by a supervisor. This indicates that who completes a job analysis is related to the results of the job analysis. It was also found that there was a significantly higher average

agreement when the jobs were white collar than when the jobs were blue collar, so the type of job is also related to the average agreement.

While this study did not measure the accuracy or reliability of the job analyses, the measure of agreement seems to be consistent with previous research by DeNisi et al. (1987), Smith and Hakel (1979) and others that showed that who completes the job analysis influences the job analysis ratings.

The average agreement between the job analyses and the job descriptions was also found to significantly differ between KSAs. The study showed that some KSAs had higher agreement between the job descriptions and job analyses. This may be due to some KSAs being more abstract and difficult to grasp, while other KSAs may be more concrete and easier to pick out as being required. These findings are consistent with research by Dierdorff and Wilson (2003) showing that raters were more reliable on specific tasks than on broader more abstract tasks.

While previous research has shown what influences the accuracy and content of the job analyses, this research is not always kept in mind when job analyses are being performed for jobs in small municipalities, or when job descriptions are being written in these municipalities. This study shows that more research needs to be conducted on how HR functions are completed in smaller organizations with limited budgets. It also illustrates the need for development of cost effective and simple methods of job analyses and other HR functions so that they can be implemented in organizations with limited staff and limited financial resources.

The findings of this study are important because job analyses and job descriptions play such an important role in HR functions. They serve as the foundation for things such as performance evaluation, recruitment and hiring, and salary determinations (Levine et al., 1988). It is important to get a better understanding of what influences the job analysis process and look at where differences are in the job descriptions and job analyses. This study does shows that HR professionals and supervisors differ in their completion of job analysis forms. The study demonstrates the need for careful consideration regarding who completes these tools. It illustrates the importance for more research into these topics.

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Appendix A. Position Information Sheet

# Municipal Exam

# Position Information Sheet

In order to make sure the exam you are ordering will be appropriate for the position you are testing for, we ask that you complete this form and fax it back to [redacted] along with a copy of the job description for the position. Please make sure this form is filled out by someone that knows the position well. The form asks specific questions about the skills, abilities and knowledge required for someone in this position. If the form is not filled out correctly, the test may not be valid.

***Note: This sheet asks about knowledge, skills and abilities the person must have <u>before</u> being hired, not those areas that they will be trained on and later perform.***

**Position Test is For**_____ **City**_____

**Form Competed By**_____ **Position**_____

**Job Description Last Updated (if known)** _____

If there are questions, who should [redacted] contact?

**Contact**_____ **Contact Number** _____

1. **Is the position considered entry level or promotional?**

   **Entry / Promo**

2. **Does the position require job knowledge prior to entry?**

   **Yes / No**

In answering this question, consider whether or not the person should have the knowledge/experience of the job before entering the position. For example, if the position you were hiring for was a Library Assistant, and the person you are going to hire needs to have previous experience in a library, or needs to have a working knowledge of a library (e.g. the Dewey Decimal System), upon starting the job, you would circle “yes”. However, if the person you hire to fill the position of Library Assistant does not need to have prior experience or a working knowledge of a library, you would circle “no.”

3. **Does the person in this position supervise any subordinates?**

   **Yes / No**

**Instructions**

The following pages will ask you to indicate whether a particular, skill, ability, or knowledge is needed for someone entering the position that the test is for. Read the definitions and examples carefully. Then, simply check the box next to any area that is needed for the position. (Keep in mind that the examples may not represent every task that involves a particular skill or ability.)

Certain areas may need you to give more specific information about the position when you check a box. Please fill this information out completely. At the end of each page, there is room for notes. Please indicate any specific guidelines for use of a particular area. For example, if you check written expression as being needed for the position, but candidates in the position only need to know definitions of words and not how to spell, it should be indicated in the notes section.

Only the skills, abilities, and knowledge that they must have upon first being hired should be considered. Any skills, abilities, and knowledge that will be taught during training once the person is hired should not be included in the information you provide.

## Basic Skills and Abilities

| Skills and Abilities | Examples | Needed? |
|---|---|---|
| **Deductive Reasoning**<br>Applying general rules to specific problems to produce answers that make sense. | ▪ Reading a chart or table to determine what employee is scheduled to work and in what location.<br>▪ Determining what behaviors are permitted according to office policy. | ☐ |
| **Equipment Selection**<br>Determining the kind of tools and equipment needed to do a job. | ▪ Selecting which type of shovel would be necessary to plant a tree.<br>▪ Determining which type of wrench is needed to repair a specific car part. | ☐ |
| **Flexibility of Closure**<br>Identifying or detecting a known pattern that is hidden in other distracting material. | ▪ Determine how many tiles will fit in a specific area. | ☐ |
| **Inductive Reasoning**<br>Combining pieces of information to form general rules or conclusions. | ▪ Use information about desired and undesired behaviors to write an official policy.<br>▪ Use information to determine what the root cause of a problem is. | ☐ |
| **Information Ordering**<br>Arranging things or actions in order of how/when they occurred or in a pattern according to specified rules. | ▪ Filing documents within a specific system.<br>▪ Placing things in proper numeric order.<br>▪ Using directions to put together a piece of equipment. | ☐ |
| **Mathematical Computation**<br>Using arithmetic principles to do simple mathematical computations. Such as addition, subtraction, multiplication, and division. | ▪ Giving change for a cash payment.<br>▪ Adding the total number of hours worked in a week.<br>▪ Determining the number of miles driven in a day. | ☐ |
| **Mathematical Problem Solving**<br>Using arithmetic computations to solve written problems. | ▪ Determining the area of an object.<br>▪ Calculating the amount due on an invoice.<br>▪ Determining how much wood will be needed to complete a project. | ☐ |

Notes:

| Skills and Abilities | Examples | Needed? |
|---|---|---|
| **Mechanical Ability**<br>Understanding how machines and tools work. | ▪ Determining which gear is broken in a simple machine.<br>▪ Deciding where weight should be applied to move an object. | ☐ |
| **Perceptual Ability**<br>Quickly and accurately comparing similarities and differences among sets of letters, numbers, objects, pictures, or patterns, as well as comparing present objects with remembered objects. | ▪ Finding typographical errors.<br>▪ Comparing the differences between to model in directions and the object being assembled. | ☐ |
| **Reading Comprehension**<br>Understanding written sentences and paragraphs. | ▪ Following directions of a supervisor.<br>▪ Reading and understanding an instruction manual, safety instructions or warning label. | ☐ |
| **Selective Attention**<br>Concentrating on a task over a period of time without being distracted. | ▪ Being able to concentrate on what a customer or supervisor is saying over background noise.<br>▪ Continuing to work on a project despite noise from outside or around the office.<br>▪ Proof reading. | ☐ |
| **Social Perceptiveness**<br>Being aware of others' reactions and knowing how to answer and react in response. Involves public relations and customer service principles. | ▪ Communicating with the media.<br>▪ Determining how to calm down an irate customer.<br>▪ Persuading someone to see your point of view.<br>▪ Implement a public relations program. | ☐ |
| **Spatial Orientation**<br>Knowing your location in relation to the environment or knowing where other objects are in relation to you. | ▪ Reading maps.<br>▪ Following directions on how to get from one point to another. | ☐ |

Notes:

| Skills and Abilities | Examples | Needed? |
|---|---|---|
| **Visualization**<br>Imagining how something will look after it is moved around or when its parts are moved or rearranged. | ▪ Being able to determine how a room would look if the furniture was rearranged.<br>▪ Assemble a broken down box.<br>▪ Put together a piece of furniture from a box. | ☐ |
| **Written Expression**<br>Communicating ideas and information in writing. Involves using proper grammar, punctuation, and grammar, as well as knowing to correct meaning of words. | ▪ Complete forms for work orders, or time sheets.<br>▪ Write letter or reports to customers or other employees.<br>▪ Complete reports on word completed. | ☐ |

Notes:

## Common Knowledge Areas

| Knowledge Area | Specific Information | Needed? |
|---|---|---|
| **Computer Literacy**<br>Using computer hardware and software. | **What specific knowledge is needed?**<br>☐ Basic Windows<br>☐ Basic Microsoft Office<br>☐ Excel<br>☐ Word<br>☐ Internet<br>**What level of knowledge is needed in these areas?**<br>☐ Basic<br>☐ Intermediate<br>☐ Expert | ☐ |
| **Safe Driving Practices**<br>Driving motor vehicles according to traffic laws and safety standards. | | ☐ |
| **Customer Service**<br>Interacting with citizens on the phone, in municipal officers, and in the community. | | ☐ |

Notes:

*******If the answer to question 2 on page 1 was "No," STOP. *******
**You do not need to complete pages 5-7.**

## Specific Knowledge Areas

| Knowledge Area | Specific Information | Needed? |
|---|---|---|
| **Accounting** | **What level of knowledge is needed in these areas?**<br>☐ Basic<br>☐ Intermediate<br>☐ Expert | ☐ |
| **Bookkeeping** | **What level of knowledge is needed in these areas?**<br>☐ Basic<br>☐ Intermediate<br>☐ Expert | ☐ |
| **City Planning** | | ☐ |
| **Construction** | **What specific knowledge is needed?**<br>☐ Building<br>☐ Concrete<br>☐ Sidewalks<br>☐ Streets<br>☐ Sewers and Water | ☐ |
| **Custodial** | | ☐ |
| **Electrical** | | ☐ |
| **Engineering** | **What specific knowledge is needed?**<br>☐ Drafting<br>☐ Fieldwork<br>☐ Fundamentals<br>☐ Highway<br>☐ Interpreting Drawings/Blueprints | ☐ |
| **Equipment Operations** | **What specific knowledge is needed?**<br>☐ Small Equipment (air compressors, jackhammers, etc.)<br>☐ Heavy (back hoes, etc.)<br>☐ Trucks<br>☐ Safety Practices | ☐ |

Notes:

| Knowledge Area | Specific Information | Needed? |
|---|---|---|
| **Heating and Refrigeration** | | ☐ |
| **Inspection** | | ☐ |
| **Landscaping** | **What specific knowledge is needed?**<br>☐ Lawn<br>☐ Trees<br>☐ Recreational Facilities | ☐ |
| **Law** | **What specific knowledge is needed?**<br>☐ Election<br>☐ Basic Procedures | ☐ |
| **Library** | **What level of knowledge is needed in these areas?**<br>☐ Basic<br>☐ Intermediate<br>☐ Expert | ☐ |
| **Mechanics- Automotive** | **What specific knowledge is needed?**<br>Diesel<br>☐ Brakes<br>☐ Engines<br>☐ Transmission and Clutch<br>Automotive<br>☐ Brakes<br>☐ Gas Engines and Transmissions<br>☐ Steering and Suspension<br>General<br>☐ Electrical Systems | ☐ |
| **Mechanics- General** | | ☐ |
| **Painting** | | ☐ |
| **Plumbing** | | ☐ |
| **Public Relations** | **What specific knowledge is needed?**<br>☐ Medial Relations<br>☐ Presentations | ☐ |

Notes:

| Knowledge Area | Specific Information | Needed? |
|---|---|---|
| **Purchasing** | | ☐ |
| **Recreation** | **What specific knowledge is needed?**<br>☐ Playground<br>☐ Scheduling<br>☐ Sports and Activities<br>☐ Youth Activities | ☐ |
| **Water/ Sewer/ Waste Water** | **What specific knowledge is needed?**<br><u>General</u><br>☐ Pumps<br>☐ Electric and Motors<br><u>Water</u><br>☐ Systems<br>☐ Pumping<br>☐ Hydrants<br>☐ Distribution systems<br>☐ Chlorine<br>☐ Water Meters<br>☐ Backfilling and Main Testing<br>☐ Storage<br>☐ Main Instillation<br><u>Sewer</u><br>☐ Pumping<br>☐ Screening and Venting<br>☐ Systems<br><u>Waste Water</u><br>☐ Screening and Ventilation<br>☐ Treatment<br>☐ Pretreatment | ☐ |
| **Zoning** | | ☐ |

<u>Notes:</u>

Appendix B. Rater Form

**Job ID #_____ Rater # _____**

**Job Title: _____ Blue Collar / White Collar**

**Job Description**

**Supervisor:** Yes No

**Promotional:** Yes No

**Knowledge Required:** Yes No

**Job Description Components**

**Title:** Yes No

**Location:** Yes No

**Summary:** Yes No

**Duties & Tasks:** Yes No

**Miscellaneous:** Yes No

**Job Analysis**

**Completed by:** Supervisor Incumbent HR Professional Other

**Agreement- Skills & Abilities**

| | **Job Description** | | **Job Analysis** | |
|---|---|---|---|---|
| Deductive Reasoning | Yes | No | Yes | No |
| Equipment Selection | Yes | No | Yes | No |
| Flexibility of Closure | Yes | No | Yes | No |
| Inductive Reasoning | Yes | No | Yes | No |
| Mathematical Computation | Yes | No | Yes | No |
| Mathematical Problem Solving | Yes | No | Yes | No |
| Mechanical Reasoning | Yes | No | Yes | No |
| Perceptual Ability | Yes | No | Yes | No |
| Reading Comprehension | Yes | No | Yes | No |
| Selective Attention | Yes | No | Yes | No |
| Social Perceptiveness | Yes | No | Yes | No |
| Spatial Orientation | Yes | No | Yes | No |
| Written Expression | Yes | No | Yes | No |

**Agreement- Knowledge**

| | **Job Description** | | **Job Analysis** | |
|---|---|---|---|---|
| Computer Literacy | Yes | No | Yes | No |
| Safe Driving Practices | Yes | No | Yes | No |
| Customer Service | Yes | No | Yes | No |
| Accounting | Yes | No | Yes | No |
| Bookkeeping | Yes | No | Yes | No |
| City Planning | Yes | No | Yes | No |
| Construction | Yes | No | Yes | No |
| Custodial | Yes | No | Yes | No |
| Electrical | Yes | No | Yes | No |
| Engineering | Yes | No | Yes | No |
| Equipment Operations | Yes | No | Yes | No |
| Heating & Refrigeration | Yes | No | Yes | No |
| Inspection | Yes | No | Yes | No |
| Landscaping | Yes | No | Yes | No |
| Law | Yes | No | Yes | No |
| Library | Yes | No | Yes | No |
| Mechanical – Automotive | Yes | No | Yes | No |
| Mechanical – General | Yes | No | Yes | No |
| Painting | Yes | No | Yes | No |
| Plumbing | Yes | No | Yes | No |
| Public Relations | Yes | No | Yes | No |
| Purchasing | Yes | No | Yes | No |
| Recreation | Yes | No | Yes | No |
| Water/Sewer/Waste Water | Yes | No | Yes | No |
| Zoning | Yes | No | Yes | No |
| Other (list) | | | | |